Arlington
AHA HOUSING AUTHORITY
MASSACHUSETTS

Commissioners:
Richard B. Murray
Nicholas C. Mitropoulos
Brian J. Connor
Daniel F. Brosnan
Joseph S. Daly

Executive Director
John J. Griffin

Tel.: (781) 646-3400
Fax: (781) 643-6923

December 6, 2018

Mr. Eric Helmuth
Chair, Community Preservation Committee
Town of Arlington
760 Massachusetts Avenue
Arlington, MA 02476

Dear Mr. Helmuth,

Thank you for the opportunity to apply for funding for the Winslow Tower Envelope Project from the Community Preservation Committee. I did receive your email from November 7, 2018 regarding the preliminary application and appreciate your and the committee's comments. I wish to clarify that the Arlington Housing Authority is not looking for funding for a study of Winslow Towers. The studies have been funded and completed with cost estimates for the needed work. The Asbestos remediation with cost is also included. We are seeking funding for the actual work and are ready to proceed with the design and bidding as soon as funding is in place. The Architect for the Winslow Towers Envelope Project is David Pollack from Abacus Architects + Planners.

Attached please find our schematic report and the Architects recommendations for Winslow Towers envelope repair. The file includes Abacus Architects + Planners memo, WJE's assessment and backup documents, and North Bay Construction Consultants' cost estimate. Pretty much all tested materials relating to envelope improvements and window replacement tested positive for asbestos. This includes sealants, glazing compounds, and also interior joint compound and "popcorn" ceiling paint. (Note that the wood parquet floor yellow glue was not ACM.)

Therefore, the full estimated costs for abatement as presented in the submitted cost estimate are valid and should be assumed. The Total Cost of the entire project would be approximately $2,080,163.
The Arlington Housing Authority has budgeted $550,00 for this project from DHCD's Formula Funds and would be willing to match any CPA funding up to $500,000 from the AHA operating reserve account.

The Arlington Housing Authority Board of Commissioners hopes the CPA Committee looks upon this application favorably and ask for your support and funding.

I am available at any time if you have any questions or need additional information.
Sincerely,

John J. Griffin
Executive Director

Community Preservation Committee
Town of Arlington

CPA Funding – FY2020 Final Application

One (1) electronic copy and three (3) hard copies of the completed application must be submitted to the CPAC **no later than 4 p.m. on December 10, 2018** in order to be considered for advancement to the final application stage, with the electronic copy sent to AFidalgo@town.arlington.ma.us and the hard copies to:

Community Preservation Committee c/o Amy Fidalgo
Town of Arlington, 730 Massachusetts Ave., Arlington, MA 02476

Applications will be date stamped and assigned control numbers in the order that the hard copies are received. This PDF form may be completed on a computer using Adobe Reader.

1. General Information

Project Title: Winslow Towers Build Envelope Project

Applicant/Contact: John J. Griffin

Organization: Arlington Housing Authority

Mailing Address: 4 Winslow Street
Arlington, MA 02474

Telephone: 781 646-3400x16 E-mail: jgriffin@arlingtonhousing.org

2. CPA Eligibility (refer to the chart on page A-4)

CPA Category (select one):

■ Community Housing ☐ Historic Preservation ☐ Open Space ☐ Recreation

CPA Purpose (select one):

☐ Acquisition ☐ Creation ■ Preservation ☐ Support ☐ Rehabilitation & Restoration

3. Budget

Amount Requested: $500,000. Total Project Cost: $2,080,163.

Signature [signature] Date 12/10/2018

Please answer and document all questions on the following page

050.0	0008	0001.A	1 of 1	Apartment	TOTAL ASSESSED:
Map	Block	Lot	CARD	ARLINGTON	!4244!

PROPERTY LOCATION

No	Alt No	Direction/Street/City
4		WINSLOW ST, ARLINGTON

OWNERSHIP

Unit #:

Owner	ARLINGTON HOUSING AUTHORITY
Owner	WINSLOW TOWERS
Owner	
Street 1	4 WINSLOW ST
Street 2	
Twn/Cit	ARLINGTON
St/Prov:	MA
Cntr	
Own Oc	N
Postal:	02474
Type	

PREVIOUS OWNER

Owner	
Owner	
Street 1	
Twn/Cit	
St/Prov:	
Cntr	
Postal:	

NARRATIVE DESCRIPTION

This Parcel contains 43,900 Sq. Ft. of land mainly classified as Housing Auth with a(n) Apt- Hi Rise Building Built about 1968, Having Primarily Brick Exterior and Tar & Gravel Roof Cover, with 136 Units, 136 Baths, 0 HalfBaths, 0 3/4 Baths, 408 Rooms Tota

OTHER ASSESSMENTS

Code	Descrip/No	Amount	Com. Int

IN PROCESS APPRAISAL SUMMARY

Use Code	Building Value	Yard Items	Land Size	Land Value	Total Value
970	10,463,400		43900.000	7,480,000	17,943,400

Source: Market Adj Cos | Total Value per SQ unit /Card: | /Parc

Legal Description

Entered Lot Size
Total Land:
Land Unit Type:

User Acct 35296
GIS Ref
GIS Ref
Insp Date 05/02/00

Parcel ID 050.0-0008-0001.A

PREVIOUS ASSESSMENT

Tax Yr	Use	Cat	Bldg Value	Yrd Items	Land Size	Land Value	Total Value	Asses'd Value	Notes	Date
2018	970	FV	10,463,400	0	43,900.	7,480,000	17,943,400	17,943,400	Year End Roll	12/20/2017
2017	970	FV	9,755,900	0	43,900.	6,120,000	15,875,900	15,875,900	Year End Roll	1/3/2017
2016	903	FV	9,755,900	0	43,900.	6,120,000	15,875,900	15,875,900	Year End	1/4/2016
2015	903	FV	8,694,700	0	43,900.	5,168,000	13,862,700	13,862,700	Year End Roll	12/11/2014
2014	903	FV	8,694,700	0	43,900.	5,168,000	13,862,700	13,862,700	Year End Roll	12/16/2013
2013	903	FV	8,694,700	0	43,900.	5,168,000	13,862,700	13,862,700		12/13/2012
2012	903	FV	7,328,200	0	43,900.	4,760,000	12,088,200	12,088,200		12/27/2011
2011	903	FV	7,328,200	0	43,900.	4,760,000	12,088,200	12,088,200		12/27/2011

PRINT

Date	Time
01/22/1	16:37:5

LAST R

Date	Time
12/15/1	16:35:4
danam	
4244	

SALES INFORMATION

TAX DISTRIC | PAT ACCT.

Grantor	Legal Ref	Type	Date	Sale Code	Sale Price	V	Tst	Verif	Assoc PCL Value	Notes
	7018-114		1/1/1901	Family		No	No			N

USER DEFINED

Prior Id #	35296
Prior Id #	
Prior Id #	
Prior Id #	
Prior Id #	
Prior Id #	
Prior Id #	
Prior Id #	
Prior Id #	
ASR Map	
Fact Dist:	
Reval Dist	
Year:	
LandReaso	
BldReason:	

BUILDING PERMITS

Date	Number	Descrip	Amount	C/O	Last Visit	Fed Code	F. Descrip	Comment
11/16/2016	1403	Manual	60,000	C				
5/19/2016	637	Re-Roof	180,650					new roof system
3/8/2016	246	Demoliti						remove antennas
6/23/2015	777	Manual	17,500		6/23/2015			Add 3 antennae to
10/9/2014	1329	Manual						Add new antennas.
9/29/2014	1269	Alterati	8,500		9/29/2014			Swap out 6 antenna
9/7/2012	1137	Manual	8,500	C				
5/11/2011	421	Manual	15,000					
2/17/2010	119	Manual	150,000					INSTALL ANTENNAS
11/6/2008	1406	Manual	8,000					attach antenna to

ACTIVITY INFORMATION

Date	Result	By	Name
4/11/2013	Info Fm Prmt	EMK	Ellen K
6/3/2010	Info Fm Prmt	BR	B Rossignol
5/2/2000	Measured	263	PATRIOT
8/1/1983		SL	

Sign VERIFICATION OF VISIT NOT BY ___/___/

PROPERTY FACTORS

Item	Code	Descip	%	Item	Cod	Descrip
Z	R7	APTS ME	100	U		
o				t		
n				l		
Census:						
Flood Haz:				xmpt		
D				Topo		
s				Stree		
t				Traffi		

LAND SECTION (First 7 lines only)

Use Code	Description	LUC Fact	No of Units	Depth / PriceUnits	Unit Type	Land Type	LT Facto	Base Value	Unit Price	Adj	Neigh	Neigh Influ	Neigh Mod	Infl 1	%	Infl 2	%	Infl 3	%	Appraised Value	Alt Class	%	Spec Land	J Code	Fact	Use Value	Notes
970	Housing Aut		43900		Sq. Ft.	Site		0	0.	0.000	AA																
970	Housing Aut		136		No. of Un	Site		0	55,000.	1.000	AA									7,480,000						7,480,000	

Total AC/HA	1.00781	Total SF/S	43900.00	Parcel LU	970	Housing Auth	Prime NB De	APT AVG

Total:	7,480,00	Spl Cre		Total:	7,480,00

Disclaimer: This Information is believed to be correct but is subject to change and is not warranteed. Database: Arlington18 apro 2019

EXTERIOR INFORMATION

Type:	84 - Apt- Hi Rise		
Sty Ht:	11 - 11 Story		
(Liv) Units	136	Total:	136
Foundatio	6 - Slab		
Frame:	2 - Steel		
Prime Wal	7 - Brick		
Sec Wall:			%
Roof Stru	4 - Flat		
Roof Cov	4 - Tar & Gravel		
Color:			
View / Des			

GENERAL INFORMATION

Grade:	B - Good		
Year Blt:	1968	Eff Yr Blt:	
Alt LUC		Alt %:	
Jurisdict	G12	Fact:	.
Const Mod:			
Lump Sum Adj:			

INTERIOR INFORMATION

Avg Ht/FL	STD		
Prim Int W	1 - Drywall		
Sec Int W			%
Partition:	T - Typical		
Prim Floor	4 - Carpet		
Sec Floor			%
Bsmnt Flr:			
Bsmnt Ga			
Electric:	3 - Typical		
Insulation:	2 - Typical		
Int vs Ext:	S		
Heat Fuel:	3 - Electric		
Heat Type	6 - Elec Base/B		
# Heat Sy	1		
% Heated:	100	% AC:	
Solar HW:	NO	Central Va	NO
% Com W		% Sprinkl	0

BATH FEATURES

Full Bat	13	Rating	Average
A Bath:		Rating	
3/4 Bat		Rating	
A 3QBt		Rating	
1/2 Bat		Rating	
A HBth		Rating	
OthrFix		Rating	

OTHER FEATURES

Kits:	13	Rating	Average
A Kits:		Rating	
Frpl:		Rating	
WSFlu		Rating	

CONDO INFORMATION

Location:	
Total Units	
Floor:	
% Own:	
Name:	

DEPRECIATION

Phys Con	AV - Average	30.	%
Functional			%
Economic			%
Special:			%
Override:			%
	Total:	30	%

CALC SUMMARY

Basic $ / SQ:	130.00
Size Adj.:	0.8000000
Const Adj.:	0.9772586
Adj $ / SQ:	101.635
Other Features:	1360000
Grade Factor:	1.33
Neighborhood I	1.0000000
LUC Factor:	1.00
Adj Total:	14947753
Depreciation:	4484326
Depreciated Tot	10463428

COMMENTS

1970.

RESIDENTIAL GRID

1st Res G		Des	Line 1						# Unit	1		
Level	FY	LR	DR	D	K	FR	RR	BR	FB	HB	L	O
Other												
Uppe												
Lvl 2												
Lvl 1												
Lowe												

Total	RMs:	4	BR	1	Bath	1	H

REMODELING

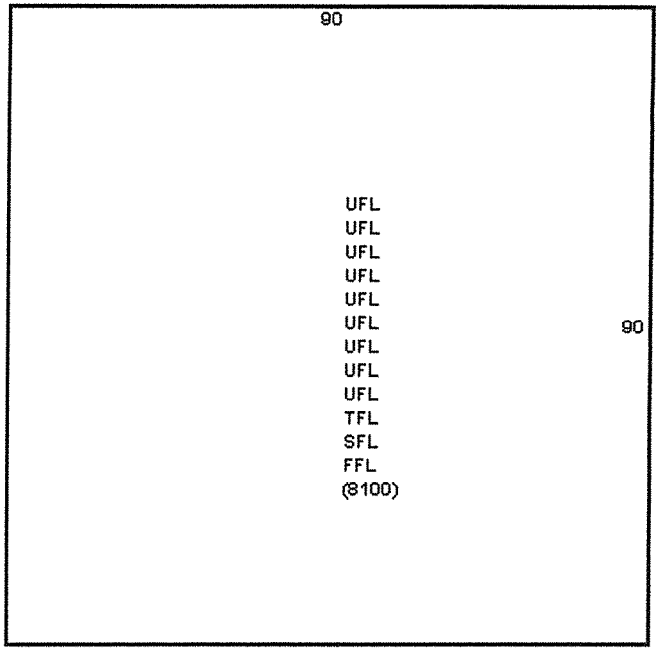
Exterior:	
Interior:	
Addition	
Kitchen:	
Baths:	
Plumbin	
Electric:	
Heating:	
General	

RES BREAKDOWN

No Uni	RMS	BRS	FL
136	3	1	

Totals		
136	408	136

SKETCH



13

SUB AREA

Code	Description	Area - SQ	Rate - AV	Undepr Value
UFL	Upper Floor	72,900	101.630	7,409,184
FFL	First Floor	8,100	101.630	823,243
SFL	Second Floor	8,100	101.630	823,243
TFL	Third Floor	8,100	101.630	823,243

SUB AREA DETAIL

Sub Area	% Usbl	Descrip	% Type	Qu	# Te

COMPARABLE SALES

Rate	Parcel ID	Typ	Date	Sale Price

WtAv$/S		AvRat		Ind.V	

Juris. Factor:	1.00	Before De	107.65
Special Featur	0	Val/Su Net	107.65
Final Total:	10463400	Val/Su Sz	107.65

Net Sketched Area:	97,200		Total:		9,878,913
Size A	97200	Gross Ar	97200	FinAr	97200

IMAGE

AssessPro Patriot Properties, Inc

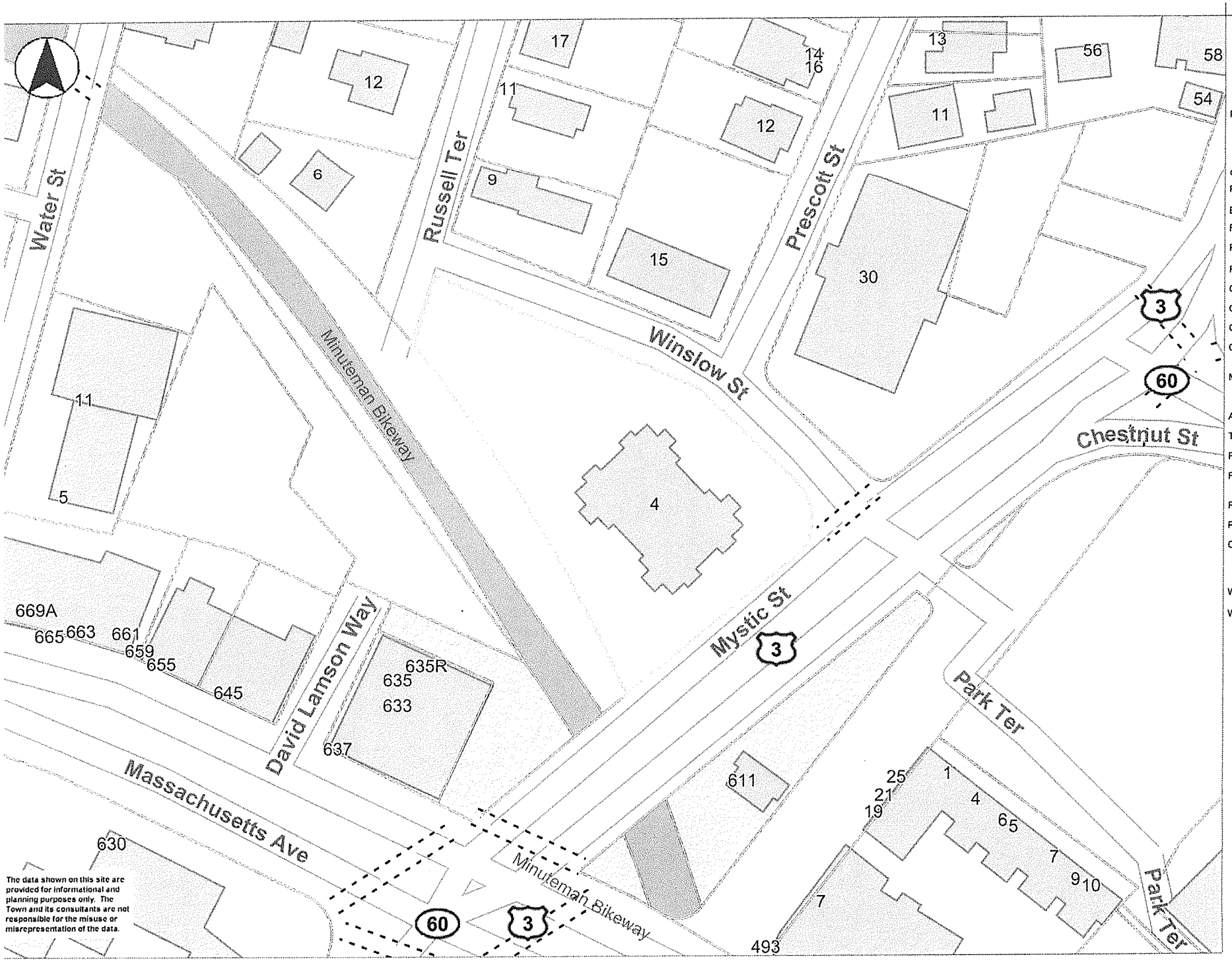
SPEC FEATURES/YARD ITEMS

PARCEL ID 050.0-0008-0001.A

Code	Description	A	Y/	Qty	Size/Dim	Qual	Con	Year	Unit Price	D/	Dep	LUC	Fact	NB	F	Appr Value	JCo JFac	Juris. Value

More	N	Total Yard Items		Total Special Featues	

Total:

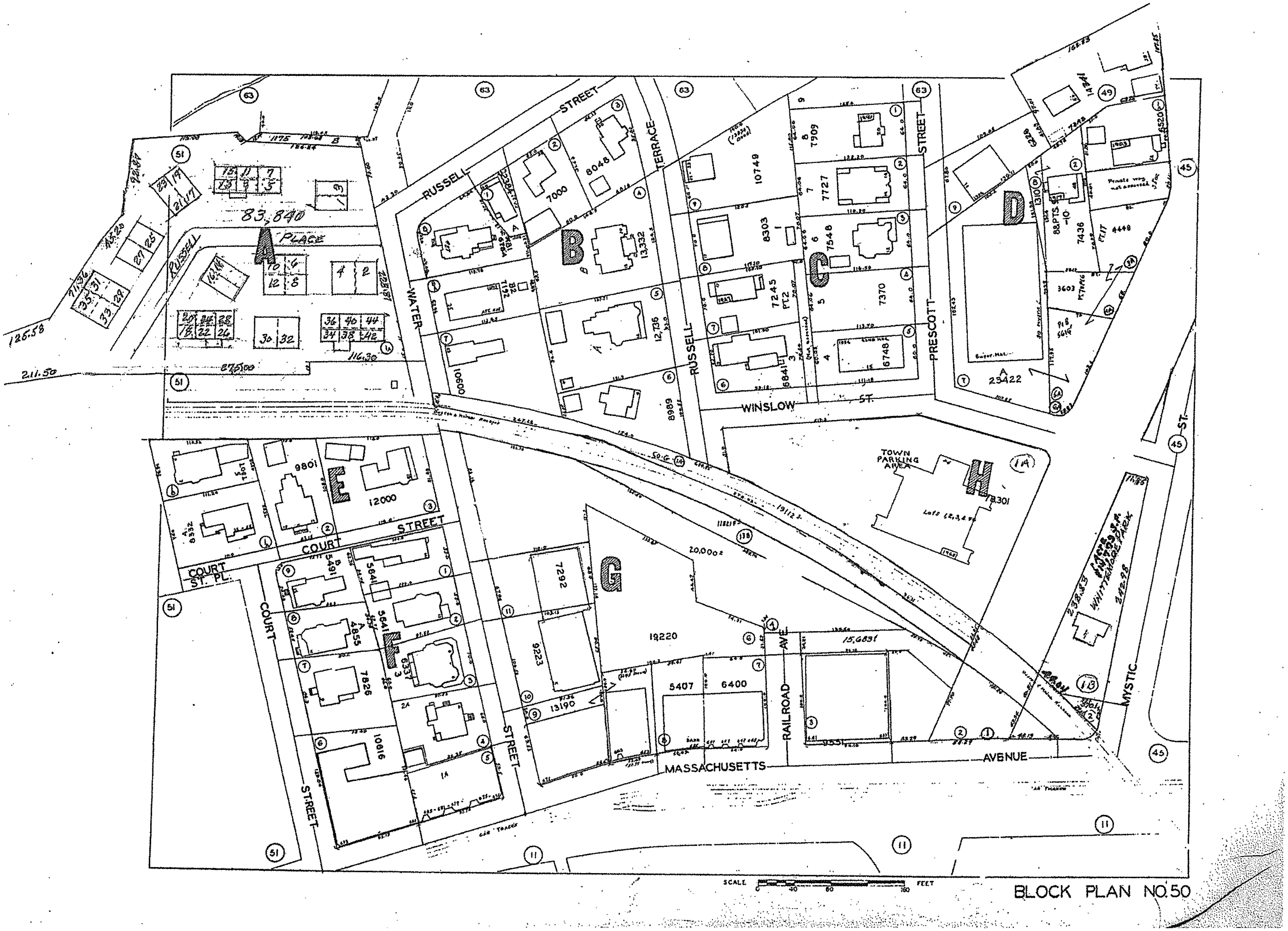


The data shown on this site are provided for informational and planning purposes only. The Town and its consultants are not responsible for the misuse or misrepresentation of the data.

0 130 260 ft

Printed on 12/06/2018 at 12:39 PM

Town of Arlington, MA


RUSSELL
PLACE
83,840
WATER
RUSSELL
STREET
TERRACE
RUSSELL
WINSLOW
ST.
STREET
PRESCOTT
COURT
STREET
COURT
ST. PL.
COURT
STREET
STREET
MASSACHUSETTS
AVENUE
RAILROAD
AVE
MYSTIC
ST.
TOWN PARKING AREA
WHITTEMORE PARK
SCALE
FEET
BLOCK PLAN NO.50

DEPARTMENT OF HOUSING & COMMUNITY DEVELOPMENT

PROJECT SCHEDULE

Arlington Housing Authority (667-3)

010090 FF: Building Envelope Repairs, Window replacement, Phase 1.

STATUS: ACTIVE

PM: Ali Makke
CA: Michael Leach
Staff A/E: John Olsen
Architect: Abacus Architects + Planners
Contractor:

OUTLINE	PROJECT PHASE	DURATION	SCHEDULED START	ACTUAL START	SCHEDULED FINISH	ACTUAL FINISH
1	**FF: Building Envelope Repairs, Window replacement, Phase 1.**	**1256d**	**6/14/2017**	**6/14/2017**	**11/20/2020**	
1.1	**STUDY**	**1d**	**6/14/2017**	**6/14/2017**	**6/14/2017**	**6/14/2017**
1.1.1	DHCD recommendation/request	0d	6/14/2017	6/14/2017	6/14/2017	
1.1.2	DHCD approves funding/award	1d	6/14/2017		6/14/2017	6/14/2017
1.2	**PLANNING**	**91d**	**6/15/2017**	**6/15/2017**	**9/13/2017**	
1.2.1	Assign in-house A/E	-1d	6/15/2017		6/14/2017	6/14/2017
1.2.2	Create RFS/WO	78d	6/14/2017	6/14/2017	8/30/2017	
1.2.3	DHCD approves RFS/WO	14d	8/31/2017		9/13/2017	
1.3	**DESIGNER SELECTION**	**196d**	**9/14/2017**	**9/14/2017**	**3/28/2018**	**3/28/2018**
1.3.1	DHCD approval to advertise	41d	9/14/2017		10/24/2017	10/24/2017
1.3.2	Applications reviewed	50d	10/25/2017		12/13/2017	12/13/2017
1.3.3	Arlington Housing Authority Board Awards	34d	12/14/2017		1/16/2018	1/16/2018
1.3.4	AE contract to DHCD	70d	1/17/2018		3/27/2018	3/27/2018
1.3.5	DHCD approves A/E contract	1d	3/28/2018		3/28/2018	3/28/2018
1.5	**CONCEPTS**	**70d**	**3/29/2018**	**3/29/2018**	**6/6/2018**	**6/6/2018**
1.5.1	Kick-off meeting	70d	3/29/2018		6/6/2018	6/6/2018
1.6	**SCHEMATICS**	**210d**	**6/7/2018**	**6/7/2018**	**1/2/2019**	
1.6.1	Schematics prepared/received	175d	6/7/2018		11/28/2018	11/28/2018
1.6.2	Schematics reviewed	21d	11/29/2018	11/29/2018	12/19/2018	
1.6.3	DHCD approves Schematics	14d	12/20/2018		1/2/2019	
1.7	**DESIGN DEVELOPMENT**	**0d**	**1/3/2019**		**1/3/2019**	
1.7.1	DD prepared/received	0d	1/3/2019		1/3/2019	
1.7.2	DD reviewed	0d	1/3/2019		1/3/2019	
1.7.3	DHCD approves DD	0d	1/3/2019		1/3/2019	
1.8	**CONSTRUCTION DOCS.**	**112d**	**1/3/2019**		**4/24/2019**	
1.8.1	CD 50% prepared/received	28d	1/3/2019		1/30/2019	
1.8.2	CD 50% reviewed	21d	1/31/2019		2/20/2019	
1.8.3	CD 50% approved	14d	2/21/2019		3/6/2019	
1.8.4	CD 100% prepared/received	14d	3/7/2019		3/20/2019	
1.8.5	CD 100% prepared/received	21d	3/21/2019		4/10/2019	
1.8.6	DHCD approval to bid	14d	4/11/2019		4/24/2019	
1.10	**BIDDING**	**106d**	**4/25/2019**		**8/8/2019**	
1.10.1	Bid adv. in Centr. Reg.	8d	4/25/2019		5/2/2019	
1.10.2	Filed Subbids opened	14d	5/3/2019		5/16/2019	
1.10.3	General bids opened	14d	5/17/2019		5/30/2019	
1.10.4	Low Bid Reviewed	7d	5/31/2019		6/6/2019	
1.10.5	DHCD approves bid	14d	6/7/2019		6/20/2019	
1.10.6	GC Contract Documents Sent	0d	6/21/2019		6/21/2019	
1.10.7	GC contract to DHCD	28d	6/21/2019		7/18/2019	
1.10.8	Construction Contract Reviewed	7d	7/19/2019		7/25/2019	
1.10.9	DHCD approves GC contract	14d	7/26/2019		8/8/2019	
1.11	**CONSTRUCTION**	**105d**	**8/9/2019**		**11/22/2019**	
1.11.1	NTP Issued	21d	8/9/2019		8/29/2019	
1.11.2	Forecasted construction period	84d	8/30/2019		11/21/2019	
1.11.3	Contract time for completion	84d	8/30/2019	6/14/2017	11/21/2019	
1.11.4	Amended time for completion	84d	8/30/2019	6/14/2017	11/21/2019	
1.11.5	DHCD approves CSC	0d	11/22/2019		11/22/2019	
1.12	**CLOSE-OUT**	**65d**	**11/22/2019**		**1/25/2020**	

1.12.1	DHCD approves CPRR	0d	11/22/2019		11/22/2019	
1.12.2	DHCD approves CFC	65d	11/22/2019		1/25/2020	
1.13	**WARRANTY**	**365d**	**11/22/2019**		**11/20/2020**	
1.13.1	9 month warranty inspection	270d	11/22/2019		8/17/2020	
1.13.2	End of warranty period	95d	8/18/2020		11/20/2020	

DEPARTMENT OF HOUSING & COMMUNITY DEVELOPMENT

PROJECT BUDGET

Arlington Housing Authority (667-3)

010090 FF: Building Envelope Repairs, Window replacement, Phase 1.

STATUS: ACTIVE

PM: Ali Makke
CA: Michael Leach
Staff A/E: John Olsen
Architect: Abacus Architects + Planners
Contractor:

ACCOUNT NUMBER	ACCOUNT DESCRIPTION	BUDGETED	PROJECTED	AUTHORIZED	REMAINING BALANCE
1410.06	Advertising	$410.00	$410.00	$402.90	$7.10
1410.16	Other Administrative Costs	$0.00	$55,000.00	$0.00	$0.00
1410	**### TOTAL ADMINISTRATION ###**	**$410.00**	**$55,410.00**	**$402.90**	**$7.10**
1430.01	A/E Basic Services	$0.00	$100,000.00	$0.00	$0.00
1430.11	E-Hosting	$0.00	$1,000.00	$0.00	$0.00
1430.19	Other Costs	$0.00	$10,000.00	$0.00	$0.00
1430	**### TOTAL A/E ###**	**$0.00**	**$111,000.00**	**$0.00**	**$0.00**
1450.01	Original Construction Contract	$0.00	$550,000.00	$0.00	$0.00
1450.02	Change Order Contingency	$0.00	$27,500.00	$0.00	$0.00
1450.03	Permit Fees	$0.00	$5,000.00	$0.00	$0.00
1450	**### TOTAL CONSTRUCTION COSTS ###**	**$0.00**	**$582,500.00**	**$0.00**	**$0.00**
1500	**### BUDGET NET TOTAL ###**	**$410.00**	**$748,910.00**	**$402.90**	**$7.10**
1510	**CFA CONTROL TOTAL**	**$25,000.00**	**$0.00**	**$0.00**	**$25,000.00**

November 19, 2018

Arlington Housing Authority
Building Envelope Repairs, Window Replacement, Phase 1
Winslow Towers 667-3, Elderly Housing
Schematic Report and Recommendations

Executive Summary

The exterior envelope of Winslow Towers, built in 1971, is currently showing its age. Water is leaking into apartments. The cast-in-place concrete finish is experiencing non-structural cracks and spalls that present a safety hazard and require repair. The windows are beyond useful life and need replacement. Sealants where brick, concrete, and windows/doors meet require replacement, and exterior metal flashings also need work. The brick masonry is in sound condition, and the structural cast-in-place concrete frame retains its integrity. The main roof was replaced in 2015 and is in good shape.

Our sub-consulting building envelope engineers Wiss, Janney, Elstner (WJE) conducted a visual survey of the building and also conducted water penetration testing. Their detailed assessment and recommendations is part of this report.

Both WJE and North Bay, our cost consultants, have broken the work down in three separate ways:

1. Each type of work is presented separately – window replacement, sealants, crack repair, etc.
2. Work on each of the four facades is listed separately, anticipating that the work may be phased by façade.
3. The work is sorted by urgency, with a small scope characterized as "short term", the bulk of the work characterized as intermediate (1-3 years), and moderate scope categorized as long term (3+ years).

The work has been priced with and without the presence of asbestos in the existing sealants, pending the asbestos testing report which will be available shortly. The total estimated cost assuming no asbestos abatement is $1,796,281. This rises by $283,882 to a total of $2,080,163 if both exterior sealants and window glazing are ACM.

Our phasing recommendations begin with an assumption of the stated project construction budget of $550,000. In addition, because AHA has applied to the Arlington Community Preservation Committee for additional funding for this project of $500,000-$1,000,000, we also outline a project approach that assumes a larger initial construction budget.

Recommendations

In general, we anticipate that all of the recommended scope should be included in the bid documents for the anticipated construction project. This is because we anticipate that the best way

ABACUS [ARCHITECTS + PLANNERS]
119 Braintree Street Boston MA 02134 tel 617 562 4446 fax 617 254 0004 contact@abacusarchitects.com

to phase the project will be to start on one side of the building and do all of the desired work together before moving on to another part of the building façade. So all of the details for the work need to be presented. There are two exceptions to this recommendation:

1. Repairs, modification, or possible replacement of the access bridge on the south façade was included in the initial scope identified in the RFP. However, as the water infiltration issues were already resolved by the removal of the drain pipe, and because of the magnitude of other needs, we recommend no scope of work associated with bridge.
2. The work included in the recommended "long term" scope is the removal of the continuous mortar joint at the top of all of the brick panels, and replacement with a flexible sealant. We agree with WJE's recommendation that this would be worthwhile. Over long periods of time brick expands, and the mortar joint doesn't allow flexibility to accommodate that sort of expansion. However, there isn't evidence at present that this expansion is occurring or that this joint replacement needs to be carried out in any specific time frame. The total estimated cost of this joint replacement is approximately $170,000. Given the other needs of the building, we recommend omitting this scope unless adequate funding can be secured to include it along with all of the other recommended work.

The short term construction work that has been identified is two-fold:

- Stabilize potential fall hazards including removing spalled an delaminated concrete from all facades and fixing or replacing a broken window;
- Perform targeted repairs to remove and replace sealant joints at window perimeters and building corners where water infiltration is most severe.

This short term scope has a total estimated cost of about $40,000 and we recommend including it as base work in the initial bid package. This work will take place on all sides of the building.

The intermediate term construction work encompasses most of the recommended repairs and is more-or-less evenly distributed across the entire exterior of the building. It consists of three types of work:

- Replace all of the windows;
- Replace all of the joint sealants;
- Fix the cracked and spalling concrete finish, as well as the broken concrete balcony railings.

Our phasing recommendation is to start at the west façade of the building and to work clockwise around the perimeter. All work on the west façade would be included in the base scope (with or without the "long term" mortar joint replacement as noted above).

The work on the north façade – in fact, on every façade – can be further broken apart into smaller sections from ground to roof. These sections are divided cleanly by the projecting cast-in-place concrete fins. So the base scope of work could just include the west façade, or it could include the west façade plus the first section up to the first fin on the north, etc. – whatever specific scope that fits comfortably within the anticipated funding cap. Additional sections of work would be separately delineated in the documents and each section would be listed as an "Add Alternate" for

separate bid pricing. In this way the exact scope of the construction contract could be adjusted and finalized after bids come in to match up with the available funding. There are quite a few fins on each façade, and our recommendation is to divide each façade into three parts for bid alternates – the left section, middle balcony section, and right section.

There are two distinct reasons to begin on the west and proceed to the north, leaving the east and south for later (if necessary). First, these exposures tend to experience more severe weather and tend to suffer more wear. This is reinforced by the fact that the vacant unit with water infiltration is on the west. The second reason is that these two sides of the building are fully paved and both pedestrians and cars are often immediately adjacent to the building. Safety concerns about falling debris are greater on these sides.

Most of the work should be able to be described and bid as fixed quantities, including the window replacement and the replacement of sealants. However, the concrete repairs is most likely best described and bid with base quantities and unit prices used for adjustment of the final quantities and final cost. This is because the exact extent of cracks and spalls will be determined up close as the work progresses and as the contractor examines all of the concrete surfaces from their staging and/or lifts.

The extent of anticipated work on each of the four facades varies somewhat with the least work anticipated on the west side and approximately 20% more work anticipated on the south side. East and north are in between. Asbestos testing will be completed shortly to assist with budgeting and preparation of construction documents. If asbestos is present in both the sealants and the window glazing, and if the "long term" work of replacing the mortar joint was included, the published $550,000 construction budget would be enough money to complete only one side of the building. On the other hand, if no asbestos is found and the "long term" work is not included, the $550,000 budget would cover one full façade plus the first third of the adjacent side. These are estimates only, of course, and with carefully constructed bid alternates we would be able to take advantage of any auspicious bids to contract for as much of the work as fit into the budget allocation at the time of contract.

Two additional construction testing/investigations are recommended during the Technical Documents development phase of the project:

- Performed carbonation and chloride testing of existing concrete elements (facades, rails, and bridge) to develop appropriate repair recommendations for concrete elements.
- Deconstruct an existing window to inform repair documents.

We will undertake both of these investigations immediately following direction to proceed with the related work as part of the scope of the construction project.

WJE | ENGINEERS ARCHITECTS MATERIALS SCIENTISTS

Wiss, Janney, Elstner Associates, Inc.
311 Summer Street, Suite 300
Boston, Massachusetts 02210
617.946.3400 tel | 617.946.0740 fax
www.wje.com

Via E-mail: dpollak@abacusarchitects.com

November 6, 2018

David Pollack, AIA LEED, Principal
Abacus Architects + Planners
119 Braintree Street
Boston, Massachusetts 02134

Re: Winslow Towers Condition Assessment - DRAFT
WJE No. 2017.6855

Dear Mr. Pollack:

Wiss, Janney, Elstner Associates, Inc. (WJE) completed a facade condition assessment and performed diagnostic water penetration testing at the Arlington Housing Authority (AHA) property Winslow Towers located at 4 Winslow Street in Arlington, Massachusetts. This letter is intended to serve as a summary of our observations and provide recommendations for short and long-term repairs.

Building Description

Winslow Towers is a 13-floor building owned and operated by the AHA and provides 132 units for elderly/disabled residents. Located in downtown Arlington, the building is bordered by Winslow Street to the north, Mystic Street to the south and Russell Terrace to the east. Built in 1971, the tower structure consists of reinforced concrete framing and shear walls, brick and CMU masonry infill, and cast-in-place concrete floors (Figure 1). The exposed cast-in-place concrete framing and brick masonry cavity wall infill make up the cladding. There are shared balconies at each floor with precast concrete and steel railing assemblies. Aluminum and steel frame, windows with insulating glass units (IGU) are set in punched openings. Existing EPDM roofing was removed and replaced with a new EPDM roofing assembly in 2015. A concrete pedestrian bridge connects the street level to the main visitor entrance at the south facade (Figure 2). The main resident entrance is located at the west facade.

Background

Previous facade repairs have included the installation of window flashing, base of wall flashing repairs at balconies, roof replacement, concrete repairs, and installation of new traffic-bearing coating at balconies. It is our understanding that there are active water leaks through the enclosure in multiple units.

Interview and Document Review

WJE met on-site with several representatives from AHA including Robert Cronin, as well as Mr. David Pollack, from Abacus Architects, to discuss ongoing facade distress and interior water leakage issues on June 6, 2018. Building tenants and staff reported water infiltration, concrete cracking and spalling, and

balcony distress. Water intrusion was reported at multiple units, including one vacant unit (Unit 1102) that WJE was shown during this site visit. Typically, water was reportedly observed at and around windows and in some cases at the ceilings of units, mainly in the living room areas. Distressed concrete was also reported at all facades, including distress at precast concrete balcony railings. AHA reported that concrete facade repairs were most recently performed in 2000. In addition to water intrusion associated with the facades, AHA report that a drain pipe at the entrance ramp at the south facade was clogged and causing flooding at the entryway. Building maintenance personnel disconnected this pipe which resolved the flooding issue.

Original construction documents, prepared by Robert Charles Associates, Inc., dated December 11, 1967, were made available to WJE for review. Review of the relevant wall sections and details provided the following significant items:

- Typical cavity wall construction spans between floor slab and perimeter beam soffit, and includes face brick, a 1-inch wide cavity, 4-inch thick concrete masonry block (CMU), 2-inches of rigid insulation, and 5/8-inch thick gypsum wallboard' (Figure 3 and Figure 4).
- Cavity wall reinforcement is shown between the face brick and back-up concrete block at 16 inches on center horizontally and 24 inches on center vertically.
- Three-ounce copper through wall flashing is shown at the base of the cavity wall on top of the concrete slab and two brick courses below the perimeter beam soffit. A note states that there should be a weep at ever third head joint at both flashing locations. Other notes call this a "3 oz. thru wall membrane flashing." Details show the flashing extending beyond the brick or concrete with a 1/2 inch drip edge.
- The concrete perimeter beams above the windows are shown to include a continuous drip edge.
- Windows are depicted as steel casement and fixed windows with a 1-inch concrete curb at the sill. Alternates show wood, metal, and aluminum windows as well.
- Glazing is shown as 1/2 inch thick insulating glass units with two 1/8 inch thick glass lites and a 1/4 inch air space.

WJE reviewed a Schematic Design Report prepared by CASE/LEA Engineers, dated February 4, 1999. The report summarized their assessment of Winslow Towers and another AHA property, Chestnut Manor. Relevant portions regarding Winslow Towers included the following:

- Water infiltration reports from tenants;
- Observations of damaged wood parquet flooring around windows;
- Concrete repairs and spalls at concrete perimeter beams and columns; and
- Ponding water at balconies.

Masonry Repair to Winslow Towers & Chestnut Manor for AHA prepared by CASE/LEA, dated January 19, 2000, were made available to WJE for review. Review of the sheets relevant to Winslow Towers showed the following:

- Concrete repair areas at the facades, perimeter beams, and balconies are shown on elevation drawings; and
- Floor plans call for a new urethane traffic membrane system to be installed at various balcony locations to address ponding issues.

Roof replacement documents prepared by Andrew M Brockway & Associates, dated August 26, 2015, were also reviewed by WJE. AHA confirmed the roof replacement was completed in 2015. These documents

describe the new roofing assembly as single-ply ethylene propylene diene monomer (EPDM) membrane with 1/2 inch cover board, over 4 inch rigid polyisocyanurate insulation on top of the sloped concrete deck. The roofing design also included new pre-fabricated guardrails.

Observations

On September 20, 2018, WJE performed a binocular survey from grade and performed a walk-through inspection of units 905, 1010, 1011, and 1102 to review several balconies from the interior. Subsequent to the binocular survey, WJE performed a limited up-close survey on September 26, 2018 by aerial personnel lift of the west facade. Items reviewed include brick masonry, flashings, windows, cast-in-place concrete, pre-cast concrete balcony railings, and joint sealants. The existing condition of the pedestrian bridge at the south facade was also observed, however, no structural assessment or assessment of accessibility or code compliance was completed by WJE. The following summarizes our observations of the different facade materials.

Brick Masonry

- Through wall flashings were observed at the floor line joint at the brick masonry bed joint as well was above the top course of brick at the joint below the perimeter beam soffit (Figure 5). Locations of observed flashing do not match original drawings, the flashing does not appear to have a drip edge, except at the bottom of the concrete beams, making it very difficult to located accurately. Weeps were observed approximately every third brick at the floor line flashing.
- Cracked mortar, bond line separation, and organic growth are typical at the mortar joint between the brick infill and the bottom of the exposed concrete beams (Figure 5).
- Bond line separation at mortar joints at window jamb returns was also observed at multiple locations.
- Mortar joints are tooled with a shallow concave profile (Figure 7). At some floor line locations, sealant is installed over the mortar (Figure 8).
- There are unsealed vent and pipe penetrations, typically at the first-floor level (Figure 9). At one location, there is also a bird's nest in the unsealed, displaced vent (Figure 10).
- One cracked brick was noted at the west facade adjacent to an eleventh-floor window (Figure 11).
- There are areas of organic growth and discoloration at the west facade (Figure 12).

Concrete

- There are multiple concrete spalls at perimeter beam at each facade (Figure 13). Shallow concrete cover (less than 1 inch), exposed, corroded reinforcing bars are typical at spall locations (Figure 14).
- One large spall (approximately 1 SF) was removed at the west facade during the close-up inspection (Figure 15).
- Incipient spalls are typical at perimeter beams, columns, and concrete shear walls at all facades (Figure 16 and Figure 17).
- Incipient spalls at all facades and concrete elements are most often observed at previous repair locations (Figure 18 and Figure 19). Previous repairs do not follow accepted industry practice for concrete repairs and have irregularly shaped perimeters and feather edging of the cementitious repair mortar.
- There is a 2 foot long vertical crack at the east facade (Figure 20)

- There is a crack along the second floor soffit at the east facade. There is also efflorescence along the crack (Figure 21).
- There are several holes and unsealed penetrations at the facades, in particular at the first floor (Figure 22, Figure 23).
- At multiple locations, there are displaced pieces of wood that appear to have been used originally to form the drip edge above the window and were never removed (Figure 24).

Precast Concrete Balcony Rails

- There are multiple incipient spalls at the exterior of one tenth-floor precast concrete balcony rail (Figure 25).
- There is an incipient spall at the exterior of a third-floor balcony rail (Figure 26).
- There is a spall at the bottom of one tenth-floor balcony rail (Figure 27).
- Concrete cracking was noted at the interiors of balcony rails at three Units surveyed. Cracking, where observed, was typically adjacent to embedded anchor locations (Figure 28)
- Organic growth is typical at the face of precast concrete balcony rails at the north, east, and west facades (Figure 29).
- Dirt and staining was observed at many of the balcony decks adjacent to drains at the edge of the balcony (Figure 30).

Cast-in-Place Concrete Pedestrian Bridge

- There are concrete cracks with efflorescence along the west side of the bridge (Figure 31).
- Cracks with efflorescence and corrosion staining are typical at the underside of the bridge (Figure 32 and Figure 33).
- There are incipient spalls at multiple locations at the bridge soffit (Figure 34).
- A large crystalline deposit has developed at an electrical penetration location (Figure 35).
- One of the drain pipes under the bridge is fractured (Figure 36).

Windows

- Holes and missing fasteners are typical at window framing (Figure 37).
- Surface corrosion was observed of two frames at the first-floor north facade windows (Figure 38 and Figure 39).
- Glass is cracked glass at two of the first-floor windows (Figure 40).

Flashings

- Bent (approximately 10 feet) and displaced top of wall (concrete perimeter beam soffit) flashing at the eleventh-floor of the west facade (Figure 41).
- Window sill flashing includes upturned legs at the jambs. The upturned ends of the flashing are typically not regleted into the concrete at the column or mortar joint at the infill masonry wall, instead they are face-sealed to the substrate (Figure 42). In some locations, the mortar joints were cut but the upturned leg of the flashing is too short to be installed into the reglet (Figure 43).
- Displaced sill flashing was noted at one location at the west facade (Figure 44 and Figure 45).

- An unidentified material, potentially flashing material or an exposed brick tie, was noted one course above floor line, above a weep (Figure 46).

Joint Sealants

- Sealant is typically crazed, hard, and brittle (Figure 47).
- There is a missing sealant joint between the head and the underside of the lintel at one door perimeter at the north facade (Figure 48).
- Window perimeter sealant is typically failed cohesively and/or adhesively (Figure 49 and Figure 50).
- Layers of sealant were noted in many locations (Figure 51).

Other

- A peregrine falcon was spotted at the west facade during the binocular survey performed by WJE (Figure 52).

Diagnostic Water Penetration Testing

WJE performed diagnostic water penetration testing on September 26, 2018 at one unoccupied unit (Unit 1102) at the west facade with previously reported water intrusion. The scope of diagnostic testing included spraying water with a nozzle at the windows, window flashing, floor line flashing, and building corner vertical sealant joint. Nozzle testing included use of an AAMA B-25 handheld spray nozzle assembly to methodically apply a directed cone of water to the windows, flashing, and joint. This method was used in an attempt to recreate the reported interior water penetration. A WJE staff member was inside the building at Unit 1102 during testing. Parquet flooring and interior wall finishes were removed to expose the floor and inside face of the backup walls at the interior of reported leak locations during testing. The table below summarizes the results of the diagnostic water tests.

Table 1. Diagnostic Water Tests Results

Test No.	Duration (minutes)	Location	Results
1	20	Bedroom window sill	No moisture observed at interior
2	20	Bedroom window sill flashing	Water infiltration observed after 5 minutes at the floor line immediately below the window sill.
3	20	Building corner between living room and bedroom	Test suspended after Unit 902 leak was observed
After approximately 45 minutes of total testing water infiltration was reported at the same bedroom window in Unit 902 (two floors below). Testing was temporarily stopped after that leak was documented.			
3	30	Building corner between living room and bedroom	Testing resumed. Water infiltration observed after 15 minutes at the living room ceiling
4	10	Floor line, living room window area	Water infiltration observed after 10 minutes at interior corner of the window at the sill
5	15	Concrete perimeter beam soffit flashing outside living room	No moisture observed at interior

Diagnostic handheld spray nozzle testing began with the first test at the west facade bedroom window of Unit 1102. The window directly below in Unit 1002 was covered with plastic to direct water away from this window assembly. The testing was focused initially on the window sill, window sill sealant, and sill flashing (Figure 53 and Figure 54). The building water pressure fluctuated throughout the testing, test pressure was controlled using the valve to keep pressure as close to 20 psi as possible. Testing was performed by spraying water along the window sill, moving the nozzle at a speed of 1 linear foot (LF) per minute. The total test time was approximately 20 minutes. No water infiltration was observed during this test.

The second test was performed at the sill flashing and adjacent damaged brick veneer (Figure 55). Water was sprayed from slightly below the flashing. Water was observed at the interior at the floor immediately below the sill after approximately five minutes of testing (Figure 56). Parquet flooring was removed to better observe the water infiltration (Figure 57). Water continued to enter at the floor line of Unit 1102 even after the water was shut off.

Testing was subsequently performed at the vertical sealant joint along the interface between the concrete wall and the masonry infill wall at the building corner. The third test started at this vertical corner sealant joint, starting at the soffit of the twelfth-floor concrete perimeter beam (immediately above the eleventh-floor window level). During this test it was reported that there was water infiltration at Unit 902, two floors below. Testing was temporarily stopped. Water infiltration was observed at the ceiling adjacent to the bedroom window in Unit 902 (Figure 58 and Figure 59). Testing restarted at the vertical sealant joint. Testing was performed by spraying water up the vertical sealant joint, moving the nozzle at a speed of 1 LF/minute (Figure 60). After 15 minutes, water was observed at the ceiling, at a concrete crack approximately two feet from the exterior wall (Figure 61). As the test continued, the water infiltration moved further into the interior along the concrete crack (Figure 62). The test was concluded after approximately 30 minutes. Water continued to enter at the ceiling even after the water was shut off.

Subsequent testing at the fourth location was at the facade corner at the living room. Initial testing at this location focused on the floor line and the window sill. Testing was performed by spraying water along the floor line at the interface of the concrete perimeter beam and brick infill above, moving the nozzle at a speed of 1 LF/minute towards the window (Figure 63). Testing ended at the window sill flashing when water was observed at the interior at the floor (Figure 64). Parquet flooring was removed to better observe the water infiltration. Water continued to enter below the living room window even after the water was shut off. Voids in the sealant at the window sill were noted during the testing (Figure 65 and Figure 66). Additional testing (Test No. 5 in Table 1) at the concrete perimeter beam flashing (below the beam) in the same area did not result in any additional water infiltration (Figure 67).

Discussion

Brick Veneer

The brick veneer is effectively functioning as a barrier given that the wall section described in the original drawings does not show waterproofing at the CMU to create a drainage plane. The location and detailing of installed through wall flashing does not match original drawings that shows a projecting drip edge, and there is not a clear drainage path associated with the flashing at the top of the brick veneer. Brick masonry

veneer distress observed is limited to bond line separation at window jamb returns, cracked mortar joints, organic growth, and one cracked and displaced brick at the west facade. Cracked brick and mortar joints may over time allow excess moisture into the wall assembly.
The cracked brick adjacent to an eleventh-floor window is of greater concern as it appears during water testing to be a source of the water infiltration observed at Unit 1102. Unsealed penetrations are also a concern as they may allow excess water to enter more directly into the interior of the building resulting in water infiltration and damage to interior finishes. AHA did not report to WJE leaks at the first floor associated with unsealed penetrations.

Staining of the brick is an aesthetic issue and typically does not impact the performance of the facade. However, organic growth is an indication that the wall assembly may be absorbing more water than can be managed by the wall assembly.

Mortar is installed at the joint at the top of the brick infill (below the concrete perimeter beam soffit). This joint is typically designed as a soft joint (sealant and backer material) sized to accommodate brick expansion over time. While the brick veneer panels were observed at this time to be generally free of distress associated with restraint stresses from brick expansion such as vertical cracks and bowing. These conditions may develop as the brick is rigidly confined between the concrete floor lines and perimeter beams.

Concrete

The quantity of distressed concrete as a percentage of the total concrete facade areas is relatively low even through locations of distress is widespread at concrete facades, balcony rails, and pedestrian bridge. Much of the concrete distress is due to corrosion of the internal steel reinforcement. As embedded steel corrodes, the corrosion product (i.e. rust scale) occupies four to eight times more volume than the original uncorroded steel. This expanding volume of rust creates bursting forces within the concrete. When those bursting forces exceed the tensile strength of concrete, the concrete cracks or spalls. Possible factors that may be contributing to the corrosion include the limited depth of concrete cover over the steel, concrete carbonation resulting in a reduced pH and loss of passivation of the steel, and/or exposure to deicing salts from the street and sidewalk. Additional testing would need to be performed to assess whether one or both of these conditions are prevalent at different building locations.

Incipient spalls at all facades are potential fall hazards. Loose material and potential fall hazards should be removed or another action, such as installation of pedestrian protection (such as a sidewalk bridge), should be completed. During WJE's up-close survey, some loose material was removed by hand; however, additional loose material still remains that was not accessible during our assessment. Removal of all loose material constituting an overhead hazard should be completed as soon as possible and at regular intervals thereafter. Installation of pedestrian protection would allow some delay in removal of loose concrete from the associated areas. Concrete cracking and spalls at the balcony rails are of particular concern as much of the distress is located at the anchors that support the railings. Further investigation and repairs are recommended at these locations.

Previously installed concrete repairs are not performing well. Previous repairs are exhibiting failure due to inadequate surface preparation, insufficient concrete cover, possible poor choice of repair material, and lack of mechanical anchorage for the cementitious repair mortar.

Concrete repairs can have a significant lifespan if common, industry-standard methods are employed. These methods include exposing the reinforcing steel at the repair location and removing the existing corrosion products from surface of the steel. The prepared reinforcing steel is normally protected with a corrosion-inhibiting coating prior to placement of the cementitious repair mortar. The perimeter of patches should be saw-cut and the boundary of delaminated or spalled concrete should be made rectangular. The surface of the concrete substrate should be prepared to remove all unsound material and have some surface roughness or irregularity introduced to increase the contact surface area and enhance the bond with the patch repair mortar. Finally, the repair material should be compatible with the substrate concrete.

Efflorescence at the pedestrian bridge along with reports of flooding at the entryway clearly show that the bridge assembly does not effectively manage or drain water. Further study of the bridge, including review of accessibility and waterproofing is recommended.

Windows

The aluminum windows were reported to be original however, there may have been replacement IGUs installed. The age of the windows with corroded frames at the first floor is not known. Many of the window frames have missing fasteners and failed perimeter sealants. In multiple locations on the west facade, there is almost no intact sealant at the perimeter of the windows. It was reported by AHA that the windows leak and diagnostic water testing confirmed it. Both windows tested leaked, one leaked in under ten minutes. The existing windows assemblies include IGUs; however, the frames are not thermally broken. Replacing the windows should be considered in order to improve water tightness of the facade, improve air infiltration resistance, improve the thermal performance, and reduce solar heat gain. The broken window at the first-floor should be addressed immediately as it is a potential safety hazard.

Flashing

Window sill flashing was reportedly added after construction, though the timeline is not clear. The installation and detailing of the flashing was deficient. Voids, gaps, and inadequate terminations are typical and the design relied heavily on sealant. Similar to the rest of the building the sealant has aged and is failed in many locations. During water testing the window sill flashing did not seem to adequately protect or manage water and both windows leaked at the sill. This flashing no longer seems to serve its intended purpose. It is recommended that these flashings are removed and replaced as part of a larger window replacement project.

Flashings at the concrete floor line and weeps suggest a drainage path at the base of the brick veneer infill. The flashings at the top of the infill panel (below the concrete perimeter beam soffit), however does not match the location shown in the design drawings, and it not clear how this flashing is functioning to redirect water out of the wall. This flashing appears to be protect the projecting edge of the brick and directing water away from the brick veneer. Testing of these flashings did not yield any water infiltration during the diagnostic testing performed by WJE due to the nature of other distress conditions that resulted in water

intrusion relatively quickly during the testing. A longer test period may show that with the brick masonry is absorbing water and with prolonged exposure may be contributing to leaks.

Sealant

Typically, sealants at the perimeter of the windows and at building joints exhibit failure or deterioration of the material and brittleness that no longer provides sufficient flexibility between dissimilar materials to accommodate normal joint movement while remaining bonded to both surfaces across the joint. The installed sealant is at the end of its service life. Perimeter sealants help manage water at the exterior of the facade to reduce the potential for water penetration to the interior of the wall system that can lead to leaks and damage to interior finishes. Prolonged moisture exposure of the window framing will also accelerate deterioration. Water testing at the windows and building joints further showed that these sealants are no longer an effective barrier. Sealant joints are an integral part of the facade water management system and should be replaced with a compatible sealant that is installed with the correct profiles and surface preparation and maintained over the service life of the material.

Conclusions

In general, maintenance to the building facades is overdue. Windows, sill flashings, and sealants should be replaced in order to improve the water management of the facades. At the concrete facades, fall hazards should be removed and concrete repairs should be performed to maintain the protection of the steel reinforcing. Deferring concrete repairs will allow continued corrosion of the reinforcing steel and the repair area will grow over time. WJE recommends that the repairs be designed by a qualified engineer to assure that a durable concrete repair procedure is utilized. WJE can assist with this effort.

Based on our review of the exterior enclosure, as well as our experience with similar buildings, WJE has developed the following recommendations to be considered with ongoing maintenance to address observed distress and reduce future deterioration.

Recommendations

In order to address the observed distress and water penetration, WJE recommends the following actions:

Short Term (Immediate to 1-year)

1. Stabilize potential fall hazards:
   a. Replace cracked glass or replace window unit at the first-floor north facade.
   b. Remove spalled and delaminated concrete from all facades.
2. Performed carbonation and chloride testing of existing concrete elements (facades, rails, and bridge) to develop appropriate repair recommendations for concrete elements.
3. Prepare project documents including drawings (plans, elevations, and details) and specifications for window and window flashing replacement. Deconstruct an existing window to inform repair documents. Recommend as a basis of design a thermally-broken aluminum frame window with insulating glass units.
4. Perform targeted repairs to remove and replace sealant joints at window perimeters and building corners where water infiltration is most severe.

5. Investigate and study existing pedestrian bridge in regards to water management, drainage, and ADA compliance.

Intermediate Term (1 to 3-years)

6. Remove and replace all existing windows with new thermally broken windows.
7. Remove and replace building sealant joints at all facades. Prior to completing repairs at all facades, perform targeted repairs and test effectiveness with addition water testing.
8. Repair spalled, cracked, and delaminated concrete at all facades and balcony railings. Balcony railing repairs may include modifying anchor attachment to accommodate concrete shrinkage of the balcony or recommendations for replacing the precast railing with a new railing system that does not utilize precast concrete elements.

Long Term (3+ years)

9. Replace mortar at joint at top of wall (between brick and concrete perimeter beam soffit) with a sealant joint to accommodate brick expansion.

These repair recommendations could be phased and prioritized by facade to capitalize on available facade access. Please contact us if you have any questions regarding this report or if we can be of further assistance.

Sincerely,

WISS, JANNEY, ELSTNER ASSOCIATES, INC.

Tara Ikenouye, AIA
Project Manager

Nikki Baldvins, PE
Project Engineer

Figures

Figure 1. Winslow Towers, west facade

Figure 2. Southeast corner with pedestrian bridge at the south facade

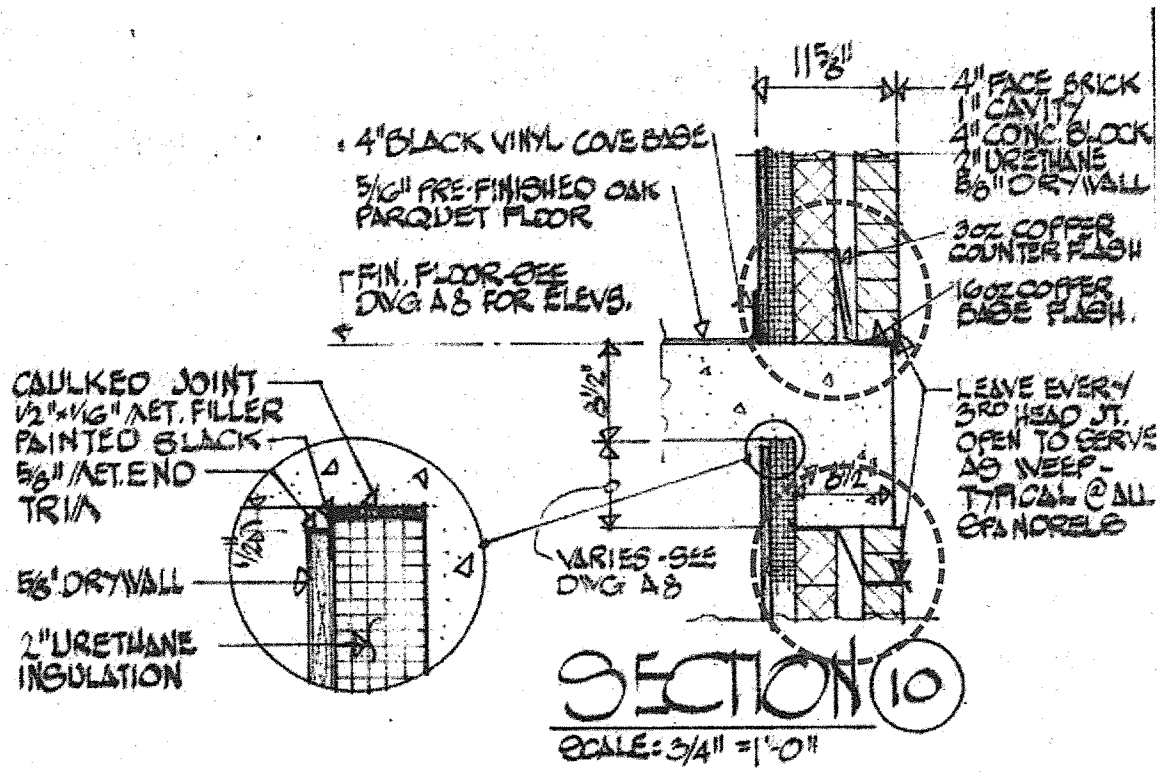


Figure 3. Typical section detail at floor line and concrete perimeter beam soffit from original construction documents, prepared by Robert Charles Associates, Inc., dated December 11, 1967. Note locations of through wall flashings (circled).

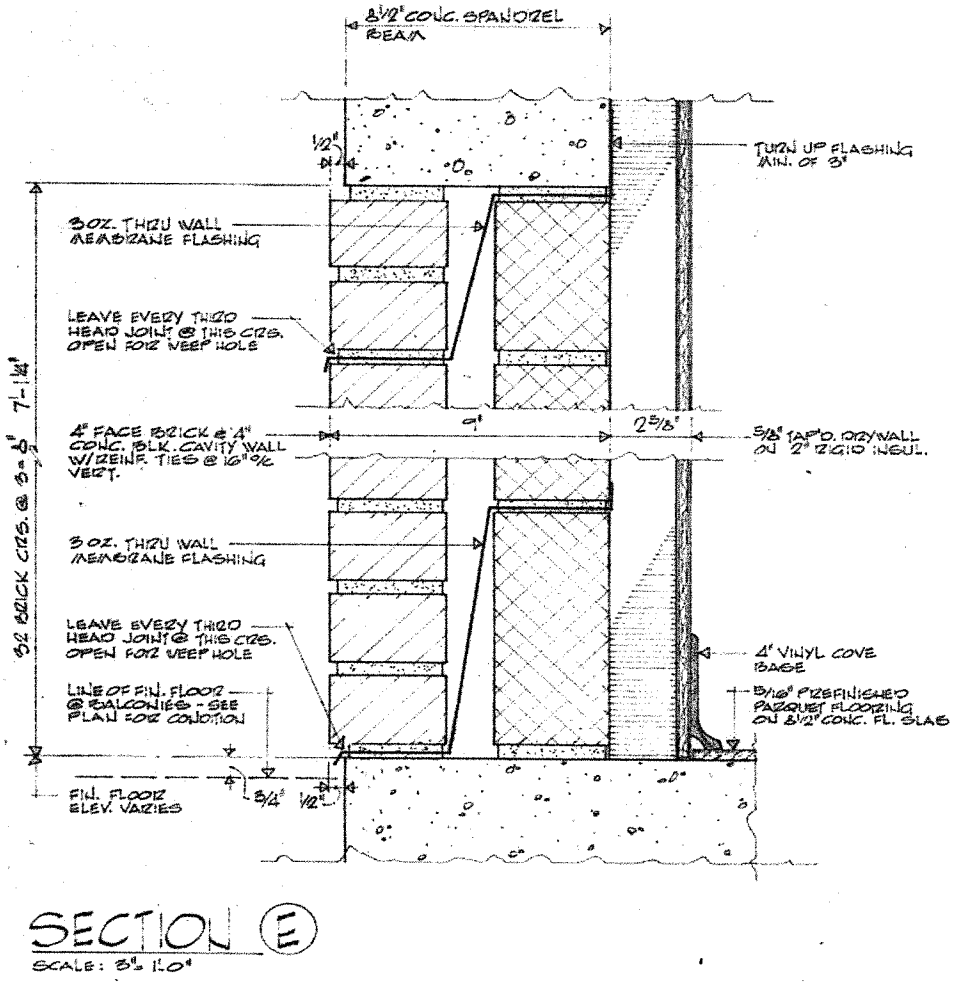


Figure 4. Typical wall section from original construction documents, prepared by Robert Charles Associates, Inc., dated December 11, 1967. Note locations of through wall flashings.

Figure 5. Typical floor line perimeter beam with exposed flashing

Figure 6. Cracked mortar and organic growth at mortar joint between brick and concrete perimeter beam soffit

Figure 7. Typical mortar joint

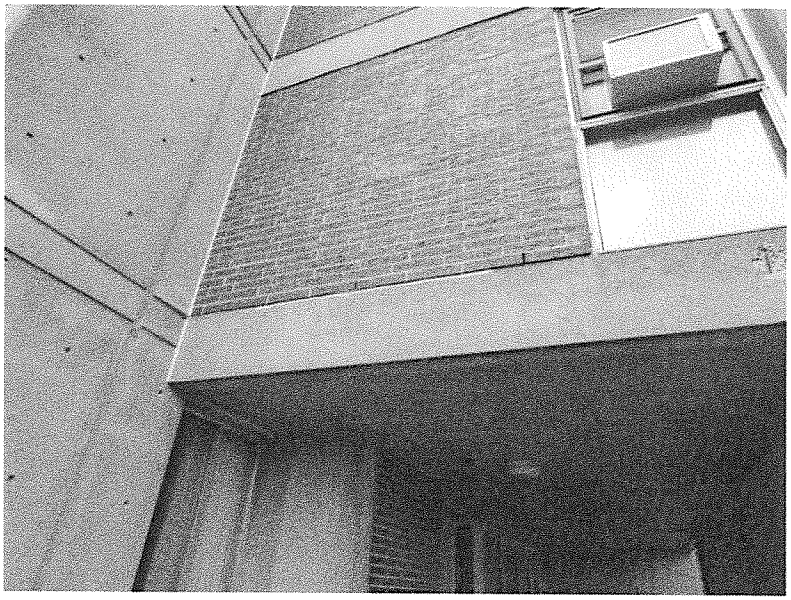


Figure 8. Sealant installed over mortar

Figure 9. Unsealed PVC pipe penetration at the east facade, first floor

Figure 10. Bird's nest in unsealed vent

Figure 11. Cracked brick at west facade, eleventh floor

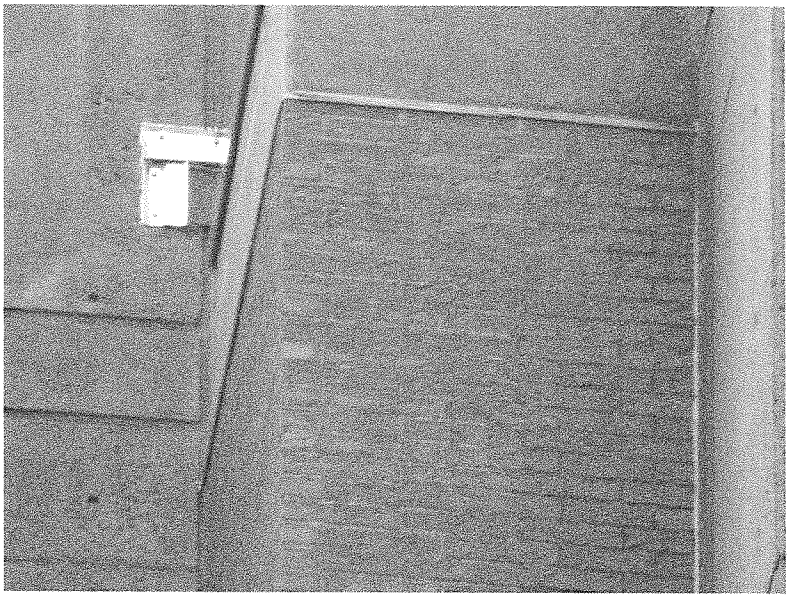


Figure 12. Organic growth and discoloration of brick at west facade

Figure 13. Typical concrete spall at west facade perimeter beam

Figure 14. Exposed and reinforcing bar at concrete spall and adjacent delaminated concrete at south facade

Figure 15. Large spall at west facade

Figure 16.Incipient spall at concrete shear wall at south facade

Figure 17. Incipient spall at concrete perimeter beam at east facade

Figure 18. Incipient spall at repaired area at west facade

Figure 19. Incipient spall at repaired area at east facade

Figure 20. Large crack in concrete at east facade

Figure 21. Crack with efflorescence at east facade

Figure 22. Unsealed hole at east facade, first floor

Figure 23. Unsealed penetration at east facade, first floor

Figure 24. Displaced wood coming from drip edge above window at west facade

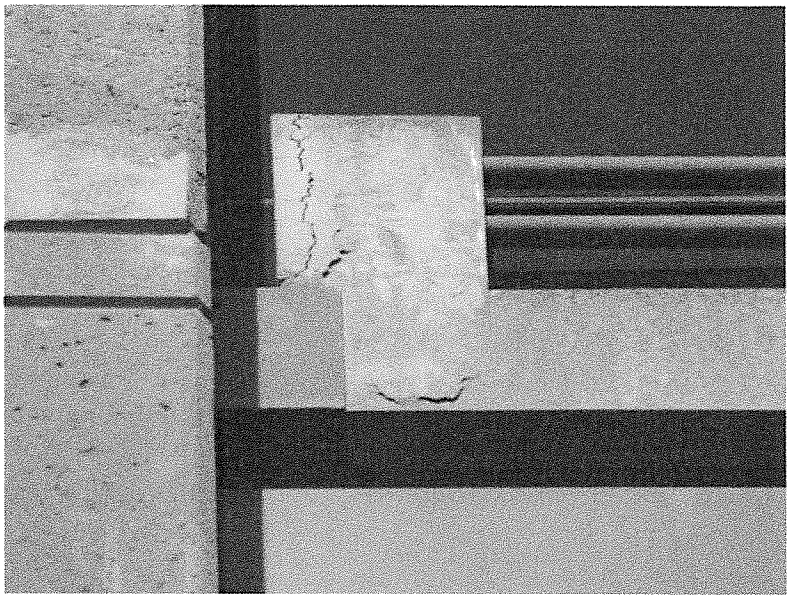


Figure 25. Incipient spalls on concrete balcony rail at east facade, tenth floor

Figure 26. Incipient spall on balcony rail at west facade, third floor

Figure 27. Spall at bottom of concrete balcony rail at south facade, tenth floor

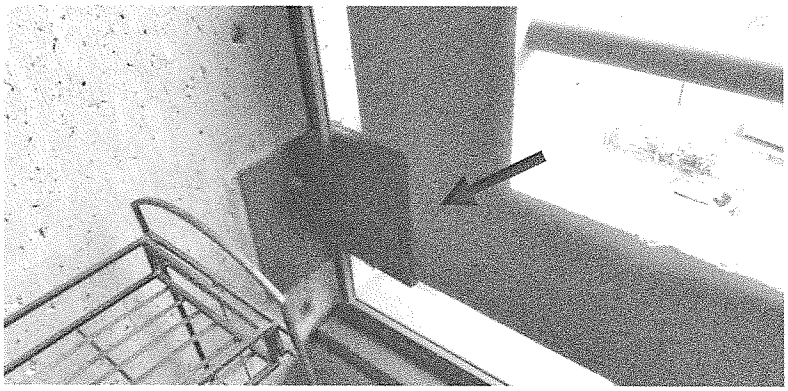


Figure 28. Concrete cracking next to anchor at balcony rail interior

Figure 29. Organic growth on precast concrete balcony rails at west facade

Figure 30. Typical dirt at balcony adjacent to drains

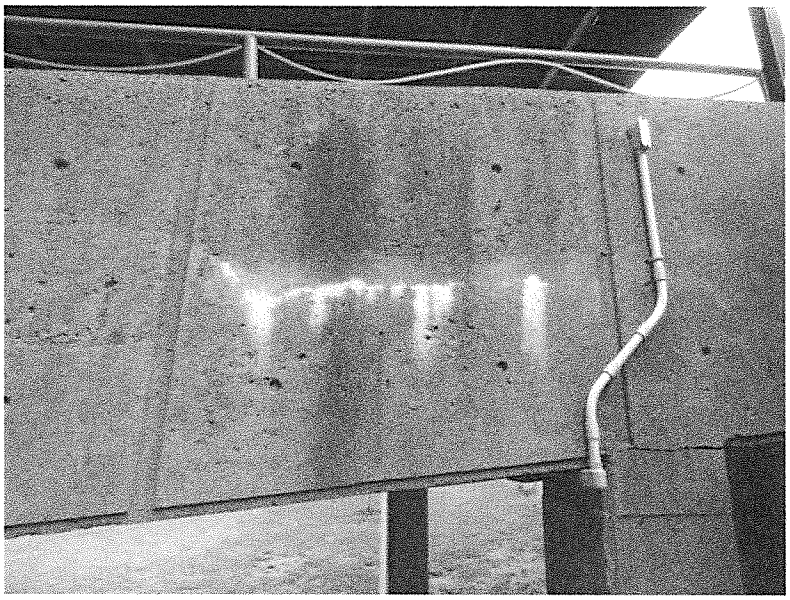


Figure 31. Cracks in concrete with efflorescence at west side of pedestrian bridge

Figure 32. Cracks in concrete with efflorescence and corrosion staining at underside of pedestrian bridge

Figure 33. Cracks in concrete with efflorescence and corrosion staining at underside of pedestrian bridge

Figure 34. Incipient spalls in concrete at underside of pedestrian bridge

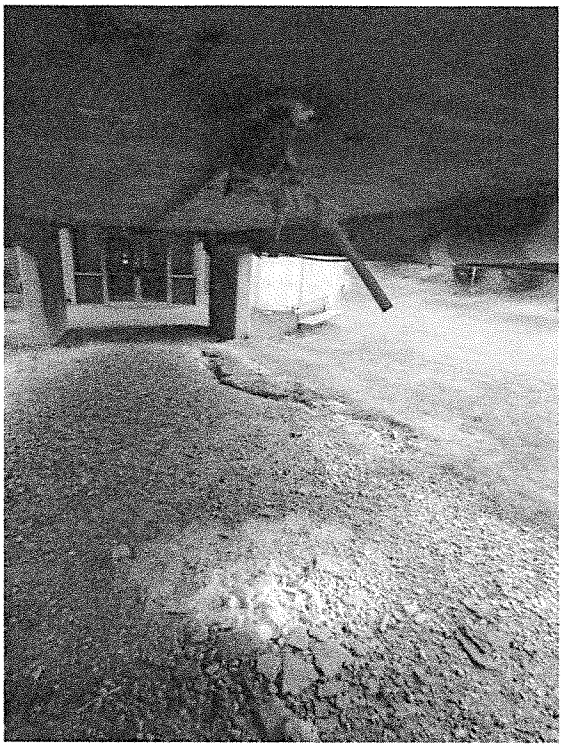


Figure 35. Efflorescence at penetration at underside of pedestrian bridge

Figure 36. Broken pipe drain at underside of pedestrian bridge

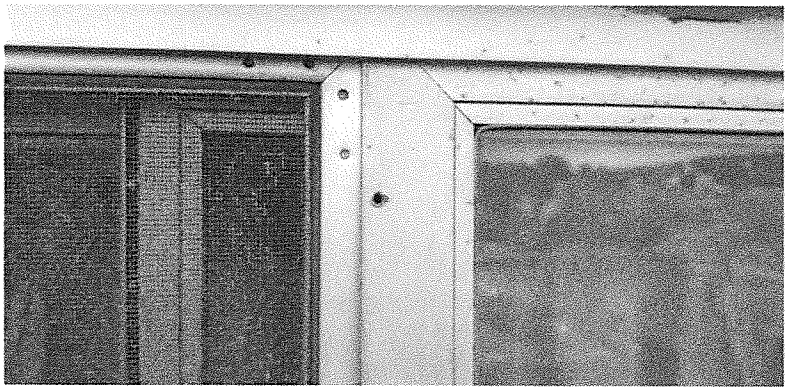


Figure 37. Fasteners missing from window framing

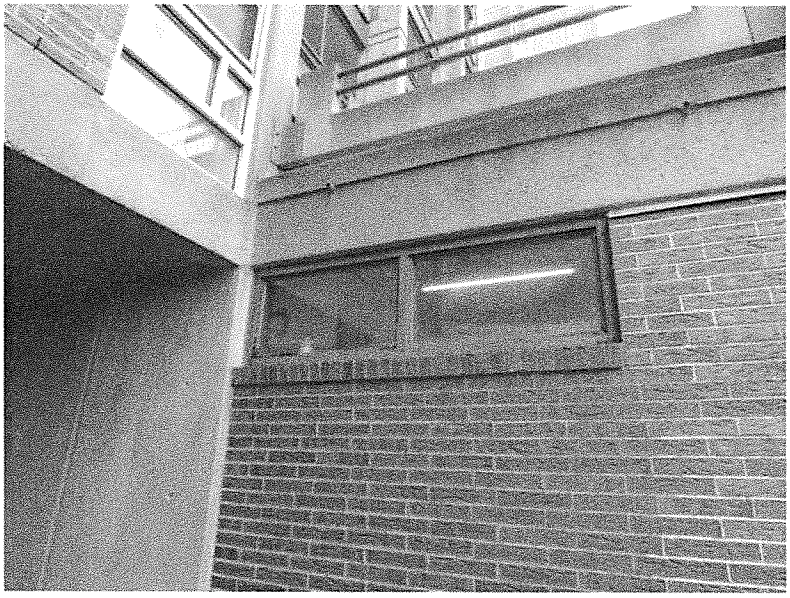


Figure 38. Corroded window frame at north facade, first floor

Figure 39. Corroded window frame at north facade, first floor

Figure 40. Cracked glass in window with corroded frame at north facade, first floor

Figure 41. Bent and displaced top of wall flashing at west facade, eleventh floor

Figure 42. Upturned leg of window sill flashing face-sealed to substrate and not recessed into a reglet

Figure 43. Cut mortar joint without embedded flashing

Figure 44. Sill flashing displaced at west facade

Figure 45. Sill flashing displaced at west facade

Figure 46. Exposed material above weep hole in first course of brick above concrete floor line

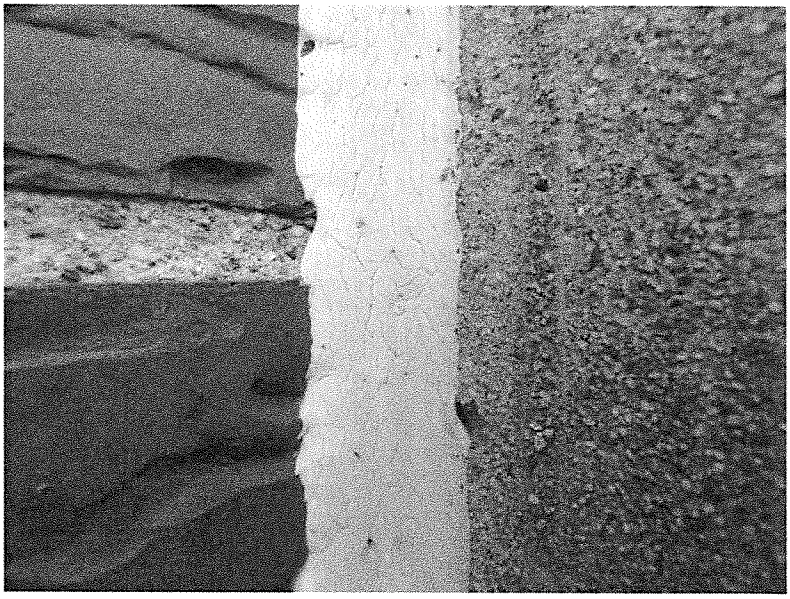


Figure 47. Crazed, hard, and brittle sealant in corner joint at west facade

Figure 48. Missing sealant joint above door at north facade

Figure 49. Window perimeter cohesive sealant failure at west facade

Figure 50. Window perimeter adhesive sealant failure at west facade

Figure 51. Multiple layers of installed sealant

Figure 52. Peregrine falcon perched on west facade

Figure 53. Testing with spray nozzle at window, west facade, eleventh floor

Figure 54. Testing with spray nozzle at window, west facade, eleventh floor

Figure 55. Location for water testing of sill flashing and brick veneer

Figure 56. Water infiltration below window sill in bedroom of unit 1102 (indicator paper turns pink upon water contact)

Figure 57. Removal of parquet flooring at leak location in bedroom of unit 1102

Figure 58. Water droplets on ceiling in bedroom of unit 902

Figure 59. Water observed on ceiling in bedroom of unit 902

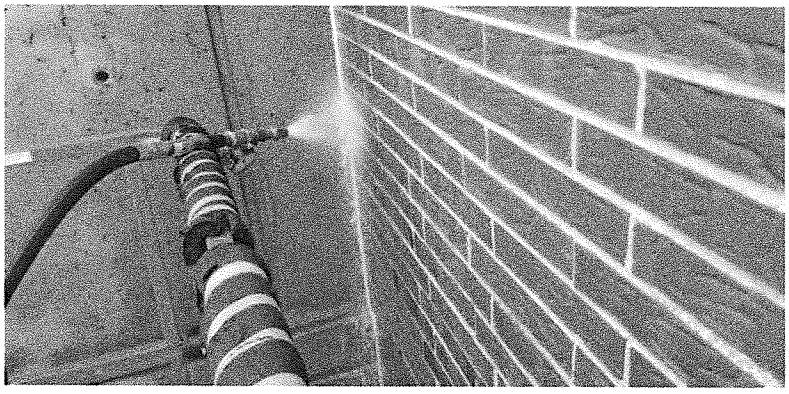


Figure 60. Water sprayed through spray nozzle at vertical corner sealant joint at eleventh floor

Figure 61. Water leakage on ceiling in the living room of unit 1102 following spraying of exterior vertical sealant joint (indicator paper turns pink upon water contact)

Figure 62. Greater water leakage on ceiling in the living room of unit 1102 following spraying of exterior vertical sealant joint (indicator paper turns pink upon water contact)

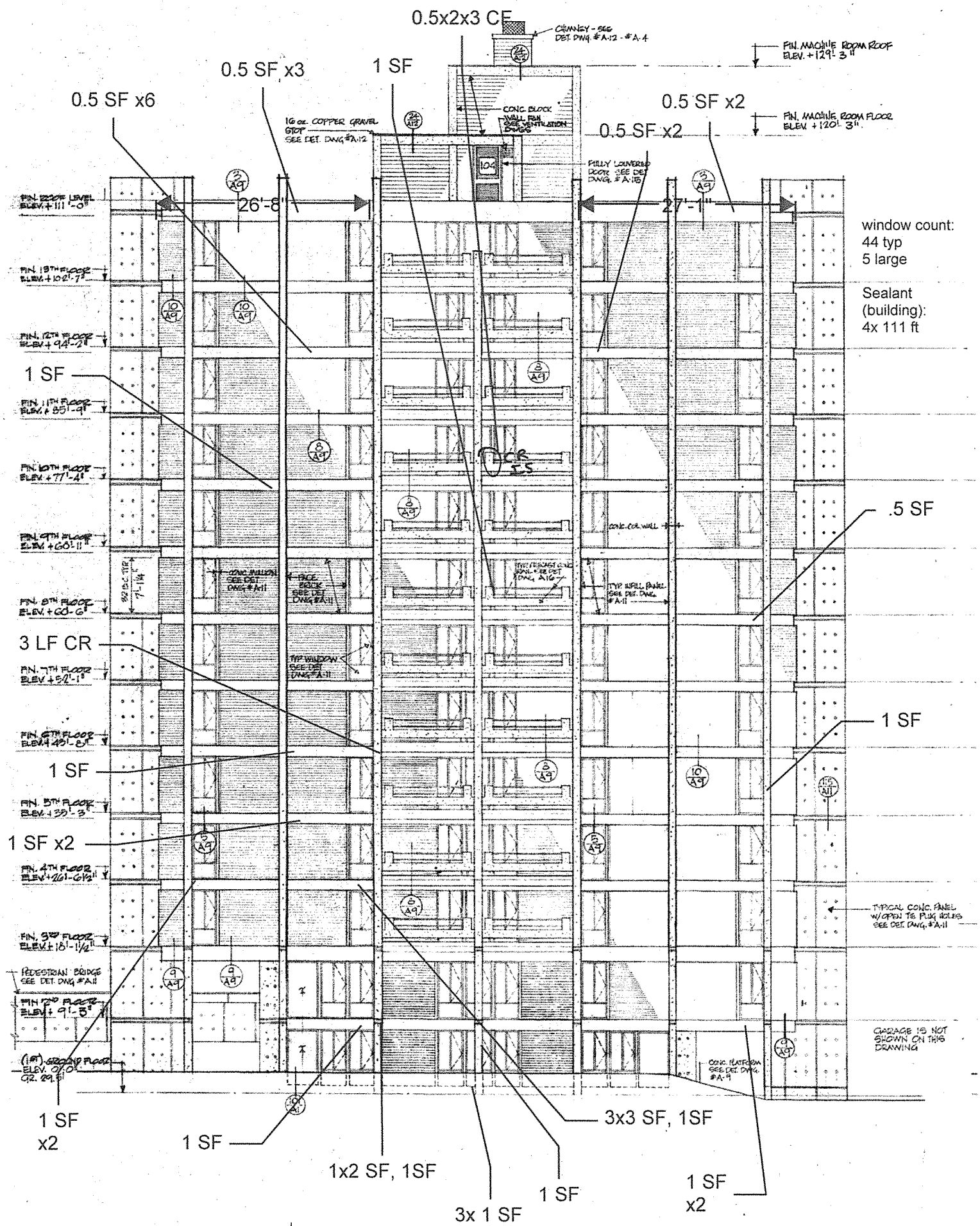
Figure 63. Water sprayed through spray nozzle at concrete floor line and brick infill on exterior of living room window of unit 1102

Figure 64. Water infiltration observed at window in living room of unit 1102 (indicator paper turns pink upon water contact)

Figure 65. Void in sealant at window sill of living room window of unit 1102

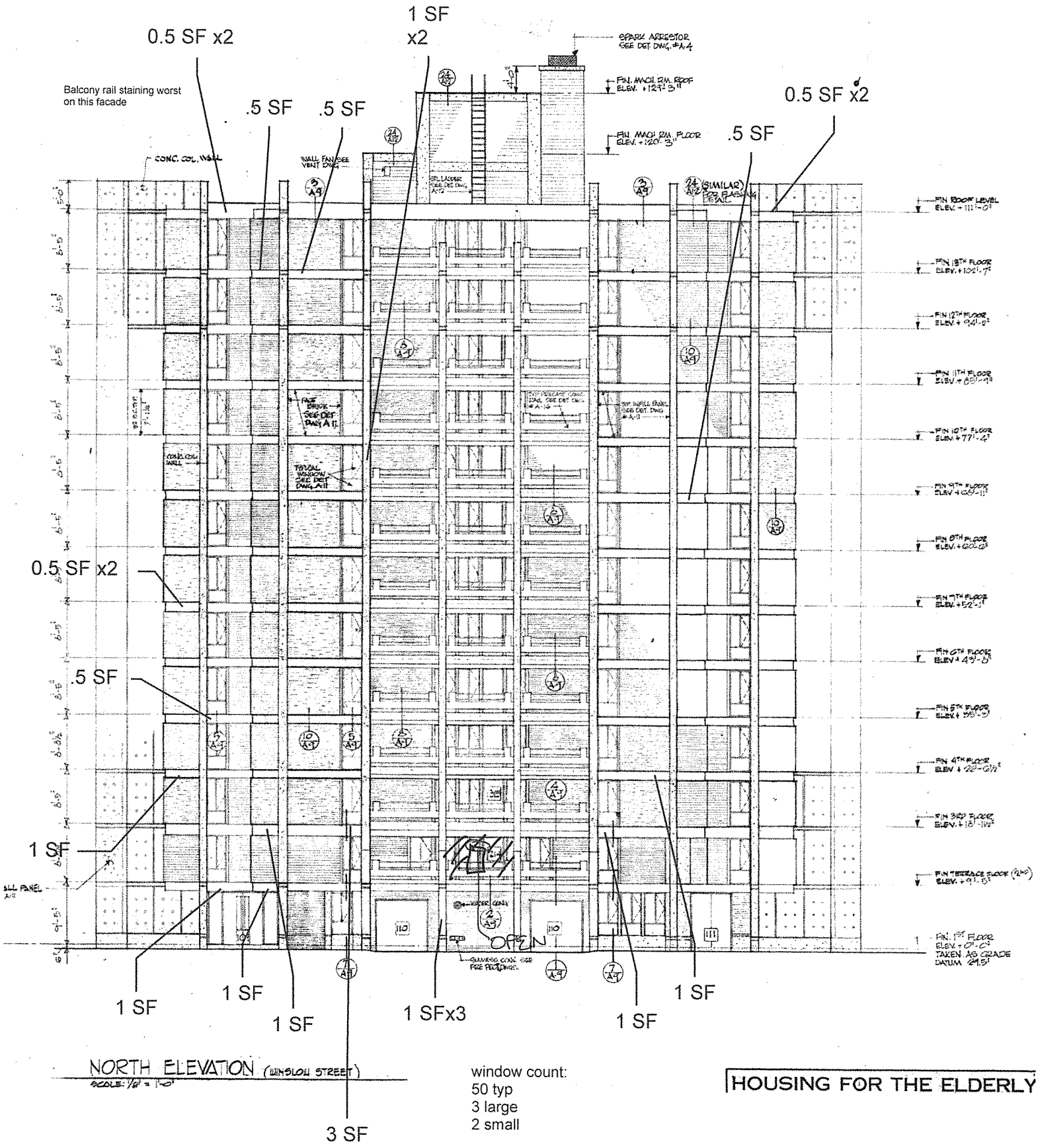
Figure 66. Void in sealant at window sill of living room window of unit 1102

Figure 67. Water sprayed through spray nozzle at concrete perimeter beam soffit flashing on exterior wall outside the living room of unit 1102



EAST ELEVATION

SCALE: 1/8" = 1'-0"

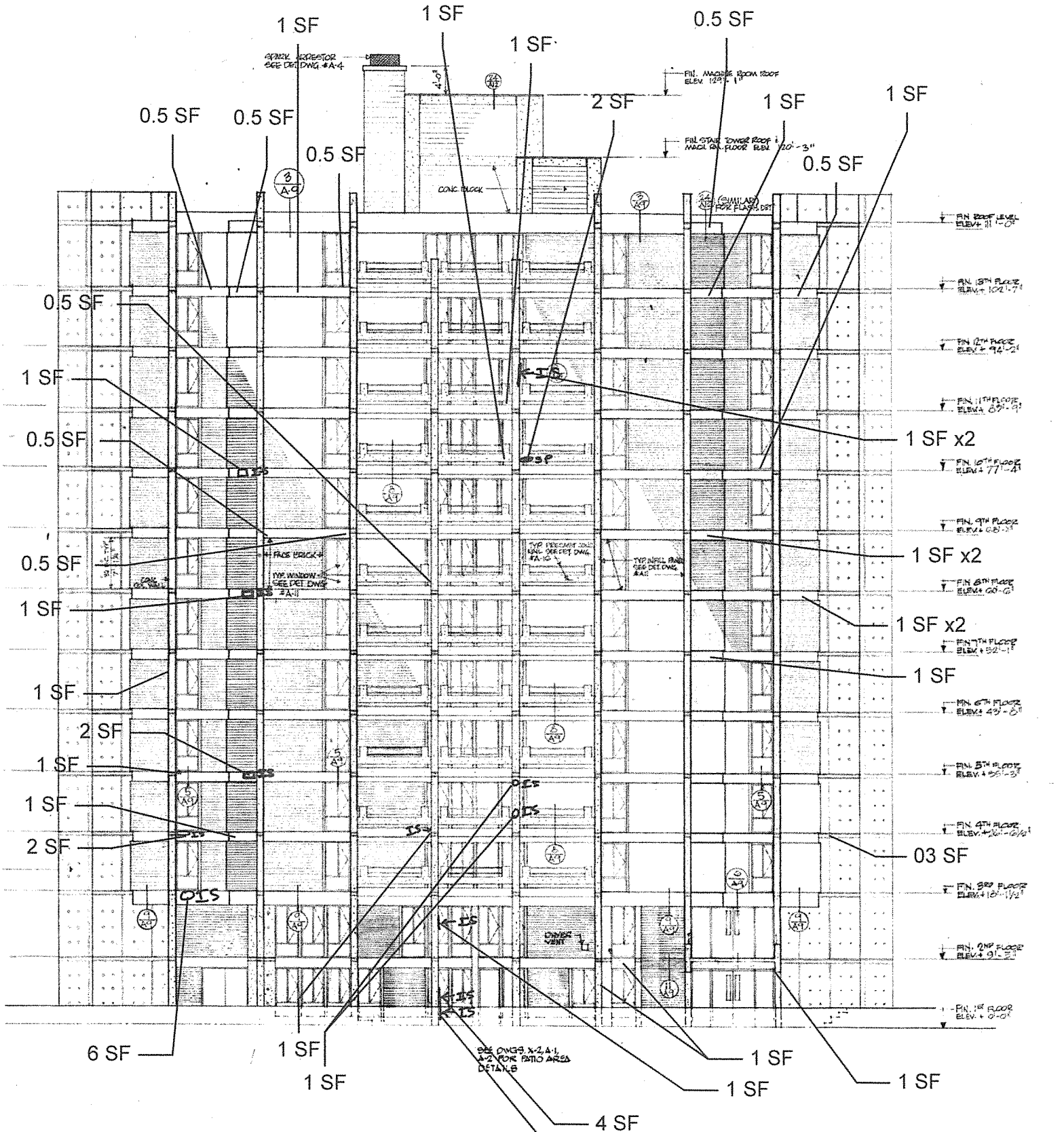


NORTH ELEVATION (WINSLOW STREET)
SCALE: 1/8" = 1'-0"

window count:
50 typ
3 large
2 small

Sealant (building):
4x 111 ft

HOUSING FOR THE ELDERLY



SOUTH ELEVATION

SCALE: 1/8" = 1'-0"

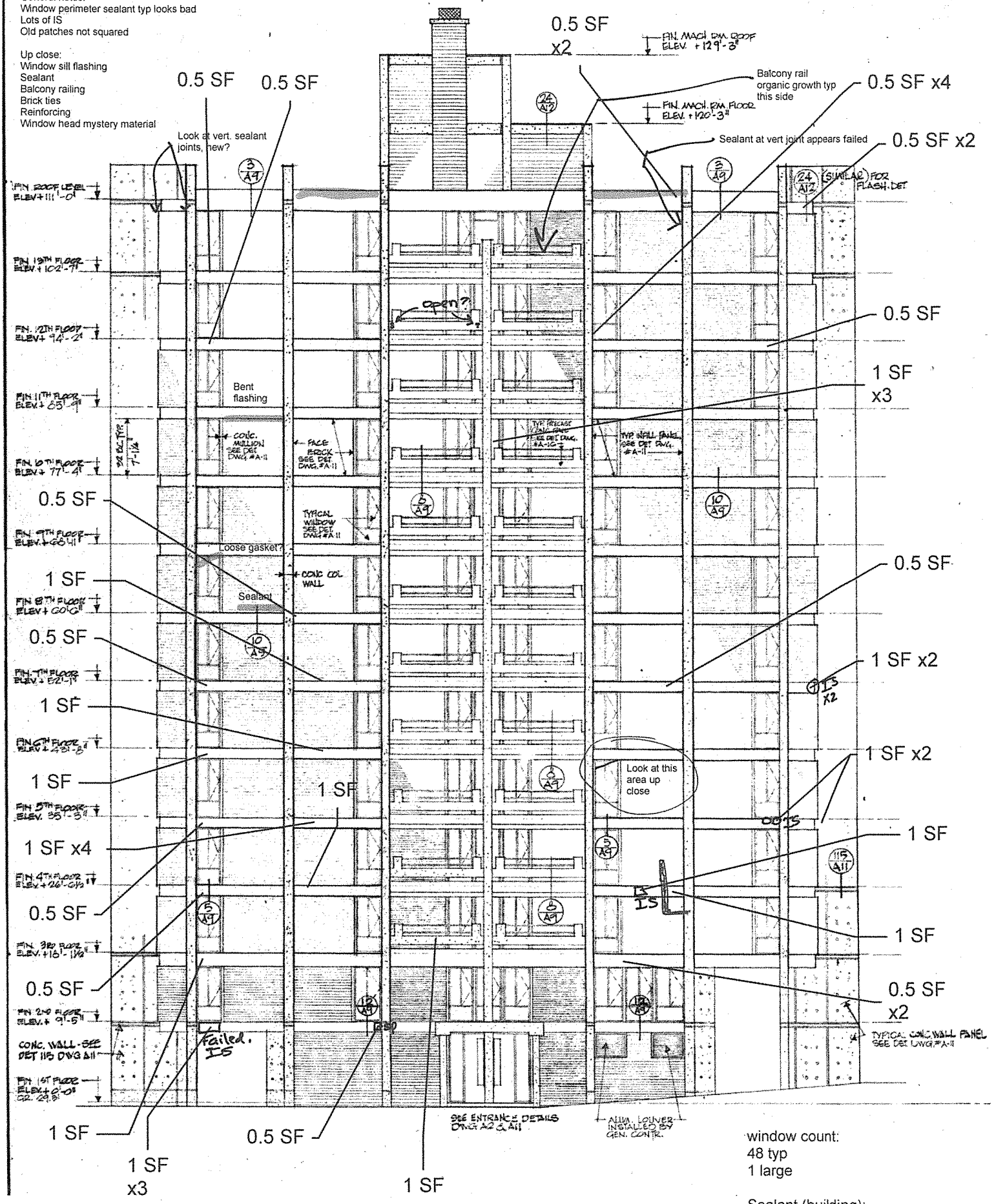
window count:
50 typ
6 large

Sealant (building):
4x 111 ft

HOUSING FOR THE ELDERL

General notes:
Window perimeter sealant typ looks bad
Lots of IS
Old patches not squared

Up close:
Window sill flashing
Sealant
Balcony railing
Brick ties
Reinforcing
Window head mystery material



window count:
48 typ
1 large

Sealant (building):
4x 111 ft

WEST ELEVATION

SCALE: 1/8" = 1'-0"

Winslow Towers - Estimated Repair Quantities

Division	Description	Quantity				
3	Concrete	Unit	North	South	East	West
	Partial Depth Vertical Concrete Facade Repair. Repair delaminated/spalled concrete, square cut repair areas, remove al loose material, prepare, install corrosion inhibiting coating on reinforcing bars, and place concrete.	SF (No. of locations)	22 (24)	72 (48)	37 (35)	50 (39)
	Partial Depth Horizontal Concrete Bridge Repair. Repair delaminated/spalled concrete, square cut repair areas, remove all loose material, prepare, install corrosion inhibiting coating on reinforcing bars, and place concrete.	SF (No. of locations)	N/A	TBD - By Others	N/A	N/A
	Partial Depth Vertical Concrete Precast Railing Repair. Repair delaminated/spalled concrete, square cut repair areas, remove al loose material, prepare, install corrosion inhibiting coating on reinforcing bars, and place concrete.	SF (No. of locations)	11 (6)	11 (6)	11 (6)	11 (6)
	Full Depth Vertical Concrete Precast Railing Repair. Repair delaminated/spalled concrete, square cut repair areas, remove al loose material, prepare, install corrosion inhibiting coating on reinforcing bars, form and place concrete.	CF (No. of locations)	11 (6)	11 (6)	11 (6)	11 (6)
	Rout and Seal Cracks.	LF	22	22	22	22
7	Thermal and Moisture Protection	Unit	North	South	East	West
	Window/Door Perimeter Sealant Joint Replacement. Remove and replace 100% of sealant and backer rod at window and door perimeters, includes upward facing joints. Use non-staining sealant.	LF	1318	1324	1199	1056
	Window Flashing Replacement. Remove existing window flashing as part of window replacement work. Install new window head and sill sheet metal flashing.	LF	491	493	442	366
	Building Sealant Joint Replacement. Remove and replace 100% of sealant and backer rod at vertical building joints (between concrete and brick). Use non-staining sealant.	LF	495	495	495	495
	Mortar Joint Replacement. Rout mortar and replace with sealant and backer rod at top joint of brick infill panels. Use non-staining sealant.	LF	660	660	660	660
8	Openings	Unit	North	South	East	West
	Window Replacement. Remove and replace existing fixed and casement windows. New windows to be thermally broken with a whole window U-value of 0.38 for fixed windows and 0.45 for operable windows. Dimensions for windows: Typical: 39 in. x 81 in. Large: 123 in. x 81 in. Small: 57 in. x 27 in.	No.	50 Typ. 5 Large 2 small	50 Typ. 6 Large	46 Typ. 5 Large	48 Typ. 1 Large

NORTH BAY
CONSTRUCTION CONSULTANTS

Winslow Towers

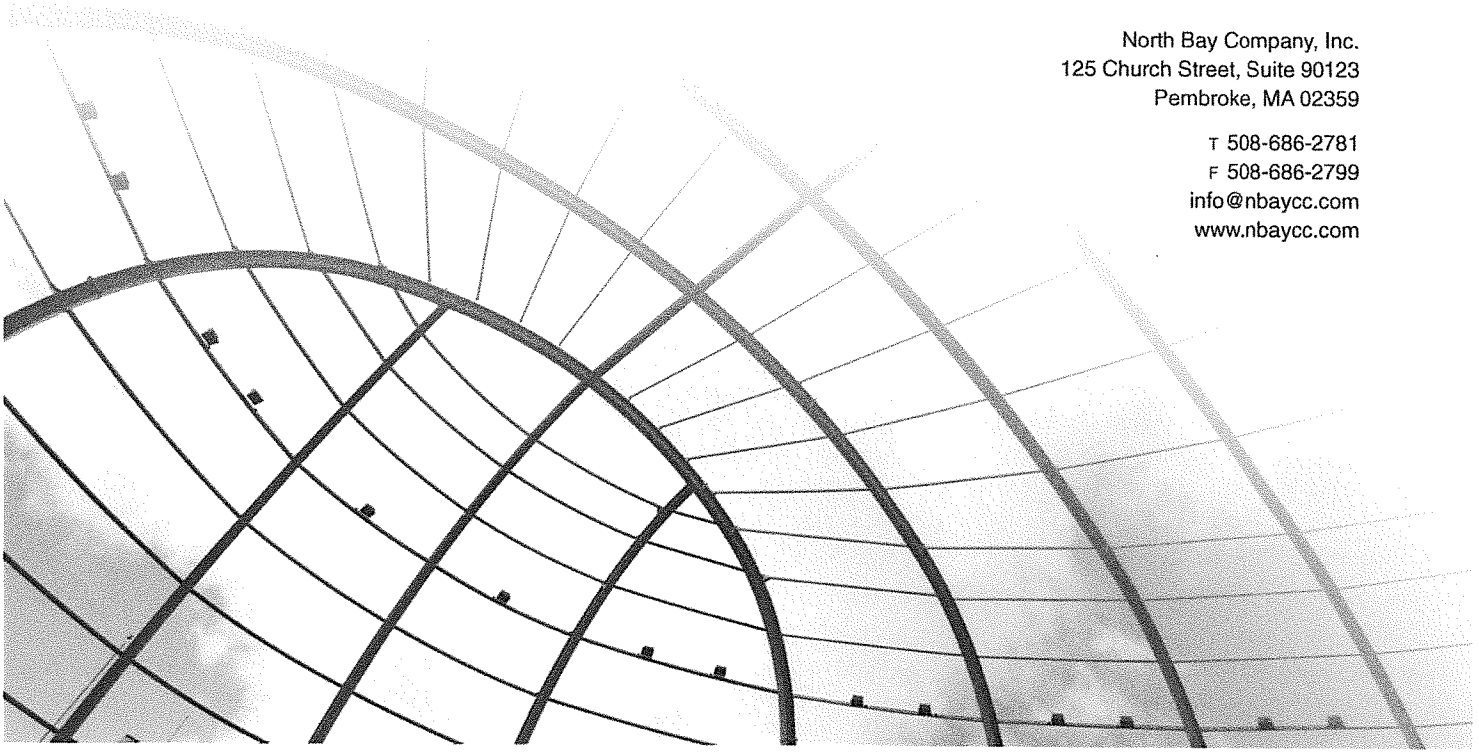
Arlington , MA

Study Phase Cost Estimate

November 16, 2018

Architect: Abacus Architects + Planners

Prepared For: Arlington Housing Authority



North Bay Company, Inc.
125 Church Street, Suite 90123
Pembroke, MA 02359

T 508-686-2781
F 508-686-2799
info@nbaycc.com
www.nbaycc.com

NORTH BAY
CONSTRUCTION CONSULTANTS

Project: Winslow Towers | Arlington Housing Authority
A/E Firm: Abacus Architects + Planners | Wiss, Janney, Elstner Associates, Inc.
Cost Estimator: North Bay Company, Inc., P.O. Box 796 Hopkinton, MA 01748
Date: November 16, 2018

STUDY PHASE COST ESTIMATE

INTRODUCTION

PROJECT DESCRIPTION:

Miscellaneous repairs to the existing exterior building envelope including concrete façade and railing repairs, exterior sealant and window replacement.

Allowances have been provided should testing reveal associated hazardous materials abatement of exterior window perimeter and building sealants and/or window glazings.

PROJECT PARTICULARS:

This estimate was prepared using a Condition Assessment Draft report dated 11/06/18 and prepared by Wiss, Janey, Elstner Associates, Inc. and existing drawings provided by Abacus Architects + Planners.

Quantities are from direct takeoff of items, when possible, according to ASPE recommended Standard Estimating Practice

Allowances are provided where information is insufficient for direct take-off.

The estimate has been organized by prioritization of scope, as well as by façade to assist with developing a final scope of work.

PROJECT ASSUMPTIONS:

Construction will be phased to allow each trade to perform their work with least amount of impact on other trades and occupants.

The project will be publicly bid and performed by a Prime General Contractor, certified by DCAMM using prevailing wage rates. Applicable Filed Sub-Bids at this time include **Metal Windows**. Depending on final scope selected and project phasing, Waterproofing, Damproofing & Caulking may also be a Filed Sub-Bid.

Costs are based on a competitive bid process in all trades and sub-trades.

Unit costs and labor are based on current construction costs in the metro-Boston area.

For the purposes of this estimate, access to the work area is assumed to be performed with the use of a 135' boom lift, operated by the tradesperson. Project particulars, contractor means & methods, phasing, site restrictions, mobilzation and workflow will dictate the actual access requirements and may result in higher or lower costs.

Note: This estimate is a reasonable opinion of cost based on the information provided. It is not a prediction of the successful bid from a contractor as bids will vary due to fluctuating market conditions, errors and omissions, proprietary specifications, lack or surplus of bidders, perception of risk, difference in level of design from estimating to final bid documents, addenda, bid clarifications, etc. Consequently the estimate is expected to fall within the range of bids from a number of competitve contractors or subcontractors, however we do not warrant that bids or negotiated prices will not vary from the final construction estimate.

PROJECT EXCLUSIONS:

Escalation beyond 1 year from now for completion of bid documents

Design Fees and other soft costs

Project Administration

Construction of temporary facilities

Site or existing conditions surveys

Printing and Advertising

Testing and Inspections

Hazardous Materials survey, reporting & monitoring

Police detail and street/sidewalk permits

Permitting

NORTH BAY
CONSTRUCTION CONSULTANTS

Project: Winslow Towers | Arlington Housing Authority
Date: November 16, 2018

STUDY PHASE COST ESTIMATE

GRAND SUMMARY

DIRECT COSTS	Short Term (0 to 1-yr)	Intermediate (1 to 3-yrs)	Long Term (3+ yrs)	Total Repair Costs	ALLOWANCES PER FAÇADE: Additional $ if Window ACM	ALLOWANCES PER FAÇADE: Additional $ if Sealant ACM
NORTH FAÇADE	$ -	$ 282,842	$ 29,400		$ 30,042	$ 21,990
SOUTH FAÇADE	$ -	$ 302,380	$ 29,400		$ 30,791	$ 22,054
EAST FAÇADE	$ -	$ 276,196	$ 29,400		$ 27,855	$ 20,336
WEST FAÇADE	$ -	$ 244,840	$ 29,400		$ 23,497	$ 18,369
TOTAL DIRECT COSTS	**$ 27,229**	**$ 1,106,259**	**$ 117,600**	**$ 1,251,088**	**$ 112,186**	**$ 82,749**
GENERAL CONDITIONS (10%)	$ 2,723	$ 110,626	$ 11,760	$ 125,109	$ 11,219	$ 8,275
BONDS & INSURANCE (1.5%)	$ 449	$ 18,253	$ 1,940	$ 20,643	$ 1,851	$ 1,365
OVERHEAD AND PROFIT (12%)	$ 3,594	$ 146,026	$ 15,523	$ 165,144	$ 14,809	$ 10,923
TOTAL - DIRECT COST AND OH&P	**$ 33,995**	**$ 1,381,164**	**$ 146,824**	**$ 1,561,983**	**$ 140,064**	**$ 103,312**
CONTINGENCY (15%)	$ 5,099	$ 207,175	$ 22,024	$ 234,297	$ 21,010	$ 15,497
TOTAL - STUDY PHASE COST ESTIMATE	**$ 39,094**	**$ 1,588,339**	**$ 168,847**	**$ 1,796,281**	**$ 161,073**	**$ 118,809**

ALLOWANCES PER PHASE	Short Term	Intermediate	Long Term	Total
Additional cost if exterior sealants are ACM	$ 4,000	$ 118,809	$ -	$ 122,809
Additional cost if window glazings are ACM		$ 161,073		$ 161,073

Note: No encapsulation of masonry included

NORTH BAY
CONSTRUCTION CONSULTANTS

Project: Winslow Towers | Arlington Housing Authority
Date: November 16, 2018

STUDY PHASE COST ESTIMATE **"SHORT TERM"**

DIRECT COST DETAIL

DIV.	ELEMENT	QTY	UNIT	UNIT COST	SUBTOTAL	ELEMENT SUBTOTAL	TOTAL
01	**GENERAL REQUIREMENTS**						**$ 17,500**
01 54	**Construction Aids**					**$15,000**	
	Mobilization/demobilization	1	LS	$ 5,000.00	$ 5,000		
	GC Lift rental, 135' boom	2	WKS	$ 4,350.00	$ 8,700		
	Portable toilet rental	2	WKS	$ 350.00	$ 700		
	Debris hauling/disposal charges (non-haz mat)	1	LS	$ 600.00	$ 600		
01 56	**Temporary Barriers & Enclosures**					**$2,500**	
	Overhead protection at entrances/exits	1	LS	$ 2,500.00	$ 2,500		
02	**EXISTING CONDITIONS**						**$ 1,530**
02 80	**Selective Demolition**					**$1,530**	
	Remove delaminated incipient concrete	18	LOC	$ 85.00	$ 1,530		
03	**CONCRETE**						**$ -**
04	**MASONRY**						**$ -**
05	**METALS**						**$ -**
06	**WOOD AND PLASTICS**						**$ -**
07	**THERMAL AND MOISTURE PROTECTION**						**$ 6,611**
07 90	**Joint Sealants**					**$6,611**	
	Exterior perimeter sealant & backer rod (ALLOW 15%)	735	LF	$ 9.00	$ 6,611		
08	**OPENINGS**						**$ 588**
08 50	**Metal Windows**					**$588**	
	Replace insulated glass at small window, north façade	11	SF	$ 55.00	$ 588		
09	**FINISHES**						**$ 1,000**
09 26	**Gypsum Board Assemblies**					**$800**	
	Misc patch to match & touch up plaster or GWB	1	LS	$ 800.00	$ 800		

NORTH BAY
CONSTRUCTION CONSULTANTS

DIRECT COST DETAIL

DIV.	ELEMENT	QTY	UNIT	UNIT COST	SUBTOTAL	ELEMENT SUBTOTAL	TOTAL
09 90	**Painting**					$200	
	Misc paint touch-up	1	LS	$ 200.00	$ 200		
12	**FURNISHINGS**						$ -
22	**PLUMBING**						$ -
23	**HVAC**						$ -
26	**ELECTRICAL**						$ -
	TOTAL DIRECT COSTS - SHORT TERM REPAIRS						$ 27,229

NORTH BAY
CONSTRUCTION CONSULTANTS

Project: Winslow Towers | Arlington Housing Authority
Date: November 16, 2018

STUDY PHASE COST ESTIMATE **"INTERMEDIATE 1 TO 3 YRS"**

DIRECT COST DETAIL - NORTH FAÇADE

DIV.	ELEMENT	QTY	UNIT	UNIT COST	SUBTOTAL	ELEMENT SUBTOTAL	TOTAL
01	**GENERAL REQUIREMENTS**						**$ 27,942**
01 54	**Construction Aids**					**$18,950**	
	Mobilization/demobilization	1	LS	$ 5,000.00	$ 5,000		
	GC Lift rental, 135' boom	1	MTHS	$ 9,500.00	$ 9,500		
	Portable toilet rental	1	MTHS	$ 350.00	$ 350		
	Debris hauling/disposal charges (non-haz mat)	11.7	TN	$ 350.00	$ 4,100		
01 56	**Temporary Barriers & Enclosures**					**$8,993**	
	Protect existing interior finishes	1	LS	$ 3,000.00	$ 3,000		
	Temporary protection at removed windows	1,464	SF	$ 3.00	$ 4,393		
	Overhead protection at entrances/exits	1	LS	$ 1,600.00	$ 1,600		
02	**EXISTING CONDITIONS**						**$ 18,040**
02 80	**Selective Demolition**					**$18,040**	
	Remove and dispose of existing window treatments	1,464	SF	$ 0.90	$ 1,318		
	Removal of existing window assemblies (non-haz mat)	1,464	SF	$ 6.50	$ 9,517		
	Cleaning	57	MHRS	$ 65.00	$ 3,705		
	Restore landscaping/grass/shrubs at affected areas (ALLOWANCE)	1	LS	$ 3,500.00	$ 3,500		
03	**CONCRETE**						**$ 8,654**
	Partial Depth Vertical Concrete Façade Repair (assume .5" to 1.5" depth)	22	SF	$ 84.00	$ 1,848		
	Partial Depth Vertical Concrete Precast Railing Repair	11	SF	$ 84.00	$ 924		
	Full Depth Vertical Concrete Precast Railing Repair (<2 CF each)	6	LOC	$ 360.00	$ 2,160		
	Allowance for anchor modifications	1	LS	$ 1,500.00	$ 1,500		
	Rout & seal cracks	22	LF	$ 101.00	$ 2,222		
04	**MASONRY**						**$ -**
05	**METALS**						**$ -**
06	**WOOD AND PLASTICS**						**$ -**

NORTH BAY
CONSTRUCTION CONSULTANTS

DIRECT COST DETAIL - NORTH FAÇADE

DIV.	ELEMENT	QTY	UNIT	UNIT COST	SUBTOTAL	ELEMENT SUBTOTAL	TOTAL
07	**THERMAL AND MOISTURE PROTECTION**						**$ 20,277**
07 90	**Joint Sealants**					**$20,277**	
	Exterior perimeter sealant & backer rod	1,318	LF	$ 9.00	$ 11,862		
	Remove & replace exterior vertical building joint sealant	495	LF	$ 17.00	$ 8,415		
08	**OPENINGS**						**$ 178,829**
08 50	**Metal Windows (Filed Sub)**					**$128,575**	
	Fixed/Casement Insulated Metal Windows ("Typical")	1,097	SF	$ 82.00	$ 89,944		
	Fixed/Casement Insulated Metal Windows ("Large")	346	SF	$ 94.00	$ 32,518		
	Fixed/Casement Insulated Metal Windows ("Small")	21	SF	$ 75.00	$ 1,603		
	Insect screens (ALLOWANCE)	439	SF	$ 8.00	$ 3,510		
	Limiters at operable windows	50	EA	$ 20.00	$ 1,000		
08 98	**Window-related Accessories (Metal Windows Filed Sub)**					**$16,221**	
	New wood blocking at sills, head & jambs	1,198	BF	$ 3.60	$ 4,313		
	Sheet metal sill pan (ALLOWANCE)	246	LF	$ 16.00	$ 3,928		
	Sheet metal head flashing (ALLOWANCE)	246	LF	$ 12.50	$ 3,069		
	Self-adhered membrane transition flashing w/primer (ALLOWANCE)	1,198	LF	$ 4.10	$ 4,912		
08 99	**Misc. Openings (Metal Windows Filed Sub)**					**$34,033**	
	Filed Sub-Bid Submittals & Coordination	1	LS	$ 9,500.00	$ 9,500		
	Mobilization/demobilization	1	LS	$ 5,000.00	$ 5,000		
	Lift rental, 135' boom	1	MTHS	$ 8,500.00	$ 8,500		
	Filed Sub-Bid OH&P (5%)	1	LS	$ 8,389.82	$ 8,390		
	Filed Sub-Bid Insurance & Bonds (1.5%)	1	LS	$ 2,642.79	$ 2,643		
09	**FINISHES**						**$ 25,439**
09 26	**Gypsum Board Assemblies**					**$19,411**	
	Misc patch to match & touch up plaster or GWB	1	LS	$ 4,000.00	$ 4,000		
	Repair plaster popcorn ceiling at windows (ALLOWANCE)	447	SF	$ 16.00	$ 7,144		
	Repair plaster at window jambs (ALLOWANCE)	376	SF	$ 22.00	$ 8,267		
09 60	**Flooring**					**$3,420**	
	Remove, prep, patch/replace Oak parquet flooring to match (ALLOWANCE)	214	SF	$ 16.00	$ 3,420		

NORTH BAY
CONSTRUCTION CONSULTANTS

DIRECT COST DETAIL - NORTH FAÇADE

DIV.	ELEMENT	QTY	UNIT	UNIT COST	SUBTOTAL	ELEMENT SUBTOTAL	TOTAL
09 90	**Painting**					$2,609	
	Paint plaster ceiling/soffit/wall	822	SF	$ 2.20	$ 1,809		
	Misc paint touch-up	1	LS	$ 800.00	$ 800		
12	**FURNISHINGS**						$ 3,660
12 20	**Window Treatments**					$ 3,660	
	Reinstall existing window treatments	1,464	SF	$ 2.50	$ 3,660		
22	**PLUMBING**						$ -
23	**HVAC**						$ -
26	**ELECTRICAL**						$ -
	TOTAL DIRECT COSTS - NORTH FAÇADE						$ 282,842

NORTH BAY
CONSTRUCTION CONSULTANTS

Project: Winslow Towers | Arlington Housing Authority
Date: November 16, 2018

STUDY PHASE COST ESTIMATE **"INTERMEDIATE 1 TO 3 YRS"**

DIRECT COST DETAIL - SOUTH FAÇADE

DIV.	ELEMENT	QTY	UNIT	UNIT COST	SUBTOTAL	ELEMENT SUBTOTAL	TOTAL
01	**GENERAL REQUIREMENTS**						**$ 37,270**
01 54	**Construction Aids**					**$28,934**	
	Mobilization/demobilization	1	LS	$ 5,000.00	$ 5,000		
	GC Lift rental, 135' boom	2.0	MTHS	$ 9,500.00	$ 19,000		
	Portable toilet rental	2.0	MTHS	$ 350.00	$ 700		
	Debris hauling/disposal charges (non-haz mat)	12.1	TN	$ 350.00	$ 4,234		
01 56	**Temporary Barriers & Enclosures**					**$8,336**	
	Protect existing interior finishes	1	LS	$ 3,000.00	$ 3,000		
	Temporary protection at removed windows	1,512	SF	$ 3.00	$ 4,536		
	Overhead protection at entrances/exits	1	LS	$ 800.00	$ 800		
02	**EXISTING CONDITIONS**						**$ 18,329**
02 80	**Selective Demolition**					**$18,329**	
	Remove and dispose of existing window treatments	1,512	SF	$ 0.90	$ 1,361		
	Removal of existing window assemblies (non-haz mat)	1,512	SF	$ 6.50	$ 9,828		
	Cleaning	56	MHRS	$ 65.00	$ 3,640		
	Restore landscaping/grass/shrubs at affected areas (ALLOWANCE)	1	LS	$ 3,500.00	$ 3,500		
03	**CONCRETE**						**$ 12,854**
	Partial Depth Vertical Concrete Façade Repair (assume .5" to 1.5" depth)	72	SF	$ 84.00	$ 6,048		
	Partial Depth Vertical Concrete Precast Railing Repair	11	SF	$ 84.00	$ 924		
	Full Depth Vertical Concrete Precast Railing Repair (<2 CF each)	6	LOC	$ 360.00	$ 2,160		
	Allowance for anchor modifications	1	LS	$ 1,500.00	$ 1,500		
	Rout & seal cracks	22	LF	$ 101.00	$ 2,222		
04	**MASONRY**						**$ -**
05	**METALS**						**$ -**
06	**WOOD AND PLASTICS**						**$ -**

NORTH BAY
CONSTRUCTION CONSULTANTS

DIRECT COST DETAIL - SOUTH FAÇADE

DIV.	ELEMENT	QTY	UNIT	UNIT COST	SUBTOTAL	ELEMENT SUBTOTAL	TOTAL
07	**THERMAL AND MOISTURE PROTECTION**						**$ 20,331**
07 90	**Joint Sealants**					**$20,331**	
	Exterior perimeter sealant & backer rod	1,324	LF	$ 9.00	$ 11,916		
	Remove & replace exterior vertical building joint sealant	495	LF	$ 17.00	$ 8,415		
08	**OPENINGS**						**$ 184,131**
08 50	**Metal Windows (Filed Sub)**					**$133,476**	
	Fixed/Casement Insulated Metal Windows ("Typical")	1,097	SF	$ 82.00	$ 89,944		
	Fixed/Casement Insulated Metal Windows ("Large")	415	SF	$ 94.00	$ 39,022		
	Fixed/Casement Insulated Metal Windows ("Small")	0	SF	$ 75.00	$ -		
	Insect screens (ALLOWANCE)	439	SF	$ 8.00	$ 3,510		
	Limiters at operable windows	50	EA	$ 20.00	$ 1,000		
08 98	**Window-related Accessories (Metal Windows Filed Sub)**					**$16,296**	
	New wood blocking at sills, head & jambs	1,204	BF	$ 3.60	$ 4,334		
	Sheet metal sill pan (ALLOWANCE)	247	LF	$ 16.00	$ 3,944		
	Sheet metal head flashing (ALLOWANCE)	247	LF	$ 12.50	$ 3,081		
	Self-adhered membrane transition flashing w/primer (ALLOWANCE)	1,204	LF	$ 4.10	$ 4,936		
08 99	**Misc. Openings (Metal Windows Filed Sub)**					**$34,360**	
	Filed Sub-Bid Submittals & Coordination	1	LS	$ 9,500.00	$ 9,500		
	Mobilization/demobilization	1	LS	$ 5,000.00	$ 5,000		
	Lift rental, 135' boom	1	MTHS	$ 8,500.00	$ 8,500		
	Filed Sub-Bid OH&P (5%)	1	LS	$ 8,638.58	$ 8,639		
	Filed Sub-Bid Insurance & Bonds (1.5%)	1	LS	$ 2,721.15	$ 2,721		
09	**FINISHES**						**$ 25,685**
09 26	**Gypsum Board Assemblies**					**$19,484**	
	Misc patch to match & touch up plaster or GWB	1	LS	$ 4,000.00	$ 4,000		
	Repair plaster popcorn ceiling at windows (ALLOWANCE)	448	SF	$ 16.00	$ 7,168		
	Repair plaster at window jambs (ALLOWANCE)	378	SF	$ 22.00	$ 8,316		
09 60	**Flooring**					**$3,584**	
	Remove, prep, patch/replace Oak parquet flooring to match (ALLOWANCE)	224	SF	$ 16.00	$ 3,584		

NORTH BAY
CONSTRUCTION CONSULTANTS

DIRECT COST DETAIL - SOUTH FAÇADE

DIV.	ELEMENT	QTY	UNIT	UNIT COST	SUBTOTAL	ELEMENT SUBTOTAL	TOTAL
09 90	**Painting**					$2,617	
	Paint plaster ceiling/soffit/wall	826	SF	$ 2.20	$ 1,817		
	Misc paint touch-up	1	LS	$ 800.00	$ 800		
12	**FURNISHINGS**						$ 3,780
12 20	**Window Treatments**					$ 3,780	
	Reinstall existing window treatments	1,512	SF	$ 2.50	$ 3,780		
22	**PLUMBING**						$ -
23	**HVAC**						$ -
26	**ELECTRICAL**						$ -
	TOTAL DIRECT COSTS - SOUTH FAÇADE						$ 302,380

NORTH BAY
CONSTRUCTION CONSULTANTS

Project: Winslow Towers | Arlington Housing Authority
Date: November 16, 2018

STUDY PHASE COST ESTIMATE **"INTERMEDIATE 1 TO 3 YRS"**

DIRECT COST DETAIL - EAST FAÇADE

DIV.	ELEMENT	QTY	UNIT	UNIT COST	SUBTOTAL	ELEMENT SUBTOTAL	TOTAL
01	**GENERAL REQUIREMENTS**						**$ 35,759**
01 54	**Construction Aids**					**$28,494**	
	Mobilization/demobilization	1	LS	$ 5,000.00	$ 5,000		
	GC Lift rental, 135' boom	2.0	MTHS	$ 9,500.00	$ 19,000		
	Portable toilet rental	2.0	MTHS	$ 350.00	$ 700		
	Debris hauling/disposal charges (non-haz mat)	10.8	TN	$ 350.00	$ 3,794		
01 56	**Temporary Barriers & Enclosures**					**$7,265**	
	Protect existing interior finishes	1	LS	$ 2,800.00	$ 2,800		
	Temporary protection at removed windows	1,355	SF	$ 3.00	$ 4,065		
	Overhead protection at entrances/exits	1	LS	$ 400.00	$ 400		
02	**EXISTING CONDITIONS**						**$ 16,842**
02 80	**Selective Demolition**					**$16,842**	
	Remove and dispose of existing window treatments	1,355	SF	$ 0.90	$ 1,220		
	Removal of existing window assemblies (non-haz mat)	1,355	SF	$ 6.50	$ 8,808		
	Cleaning	51	MHRS	$ 65.00	$ 3,315		
	Restore landscaping/grass/shrubs at affected areas (ALLOWANCE)	1	LS	$ 3,500.00	$ 3,500		
03	**CONCRETE**						**$ 9,914**
	Partial Depth Vertical Concrete Façade Repair (assume .5" to 1.5" depth)	37	SF	$ 84.00	$ 3,108		
	Partial Depth Vertical Concrete Precast Railing Repair	11	SF	$ 84.00	$ 924		
	Full Depth Vertical Concrete Precast Railing Repair (<2 CF each)	6	LOC	$ 360.00	$ 2,160		
	Allowance for anchor modifications	1	LS	$ 1,500.00	$ 1,500		
	Rout & seal cracks	22	LF	$ 101.00	$ 2,222		
04	**MASONRY**						**$ -**
05	**METALS**						**$ -**
06	**WOOD AND PLASTICS**						**$ -**

NORTH BAY
CONSTRUCTION CONSULTANTS

DIRECT COST DETAIL - EAST FAÇADE

DIV.	ELEMENT	QTY	UNIT	UNIT COST	SUBTOTAL	ELEMENT SUBTOTAL	TOTAL
07	**THERMAL AND MOISTURE PROTECTION**						**$ 19,206**
07 90	**Joint Sealants**					**$19,206**	
	Exterior perimeter sealant & backer rod	1,199	LF	$ 9.00	$ 10,791		
	Remove & replace exterior vertical building joint sealant	495	LF	$ 17.00	$ 8,415		
08	**OPENINGS**						**$ 167,437**
08 50	**Metal Windows (Filed Sub)**					**$119,416**	
	Fixed/Casement Insulated Metal Windows ("Typical")	1,009	SF	$ 82.00	$ 82,748		
	Fixed/Casement Insulated Metal Windows ("Large")	346	SF	$ 94.00	$ 32,518		
	Fixed/Casement Insulated Metal Windows ("Small")	0	SF	$ 75.00	$ -		
	Insect screens (ALLOWANCE)	404	SF	$ 8.00	$ 3,229		
	Limiters at operable windows	46	EA	$ 20.00	$ 920		
08 98	**Window-related Accessories (Metal Windows Filed Sub)**					**$14,692**	
	New wood blocking at sills, head & jambs	1,090	BF	$ 3.60	$ 3,924		
	Sheet metal sill pan (ALLOWANCE)	221	LF	$ 16.00	$ 3,536		
	Sheet metal head flashing (ALLOWANCE)	221	LF	$ 12.50	$ 2,763		
	Self-adhered membrane transition flashing w/primer (ALLOWANCE)	1,090	LF	$ 4.10	$ 4,469		
08 99	**Misc. Openings (Metal Windows Filed Sub)**					**$33,330**	
	Filed Sub-Bid Submittals & Coordination	1	LS	$ 9,500.00	$ 9,500		
	Mobilization/demobilization	1	LS	$ 5,000.00	$ 5,000		
	Lift rental, 135' boom	1	MTHS	$ 8,500.00	$ 8,500		
	Filed Sub-Bid OH&P (5%)	1	LS	$ 7,855.35	$ 7,855		
	Filed Sub-Bid Insurance & Bonds (1.5%)	1	LS	$ 2,474.44	$ 2,474		
09	**FINISHES**						**$ 23,650**
09 26	**Gypsum Board Assemblies**					**$17,998**	
	Misc patch to match & touch up plaster or GWB	1	LS	$ 4,000.00	$ 4,000		
	Repair plaster popcorn ceiling at windows (ALLOWANCE)	402	SF	$ 16.00	$ 6,424		
	Repair plaster at window jambs (ALLOWANCE)	344	SF	$ 22.00	$ 7,574		
09 60	**Flooring**					**$3,212**	
	Remove, prep, patch/replace Oak parquet flooring to match (ALLOWANCE)	201	SF	$ 16.00	$ 3,212		

NORTH BAY
CONSTRUCTION CONSULTANTS

DIRECT COST DETAIL - EAST FAÇADE

DIV.	ELEMENT	QTY	UNIT	UNIT COST	SUBTOTAL	ELEMENT SUBTOTAL	TOTAL
09 90	**Painting**					$2,441	
	Paint plaster ceiling/soffit/wall	746	SF	$ 2.20	$ 1,641		
	Misc paint touch-up	1	LS	$ 800.00	$ 800		
12	**FURNISHINGS**						$ 3,388
12 20	**Window Treatments**					$ 3,388	
	Reinstall existing window treatments	1,355	SF	$ 2.50	$ 3,388		
22	**PLUMBING**						$ -
23	**HVAC**						$ -
26	**ELECTRICAL**						$ -
	TOTAL DIRECT COSTS - EAST FAÇADE						$ 276,196

NORTH BAY
CONSTRUCTION CONSULTANTS

Project: Winslow Towers | Arlington Housing Authority
Date: November 16, 2018

STUDY PHASE COST ESTIMATE **"INTERMEDIATE 1 TO 3 YRS"**

DIRECT COST DETAIL - WEST FAÇADE

DIV.	ELEMENT	QTY	UNIT	UNIT COST	SUBTOTAL	ELEMENT SUBTOTAL	TOTAL
01	**GENERAL REQUIREMENTS**						**$ 34,809**
01 54	**Construction Aids**					**$27,842**	
	Mobilization/demobilization	1	LS	$ 5,000.00	$ 5,000		
	GC Lift rental, 135' boom	2.0	MTHS	$ 9,500.00	$ 19,000		
	Portable toilet rental	2.0	MTHS	$ 350.00	$ 700		
	Debris hauling/disposal charges (non-haz mat)	9.0	TN	$ 350.00	$ 3,142		
01 56	**Temporary Barriers & Enclosures**					**$6,967**	
	Protect existing interior finishes	1	LS	$ 2,800.00	$ 2,800		
	Temporary protection at removed windows	1,122	SF	$ 3.00	$ 3,367		
	Overhead protection at entrances/exits	1	LS	$ 800.00	$ 800		
02	**EXISTING CONDITIONS**						**$ 14,989**
02 80	**Selective Demolition**					**$14,989**	
	Remove and dispose of existing window treatments	1,122	SF	$ 0.90	$ 1,010		
	Removal of existing window assemblies (non-haz mat)	1,122	SF	$ 6.50	$ 7,294		
	Cleaning	49	MHRS	$ 65.00	$ 3,185		
	Restore landscaping/grass/shrubs at affected areas (ALLOWANCE)	1	LS	$ 3,500.00	$ 3,500		
03	**CONCRETE**						**$ 11,006**
	Partial Depth Vertical Concrete Façade Repair (assume .5" to 1.5" depth)	50	SF	$ 84.00	$ 4,200		
	Partial Depth Vertical Concrete Precast Railing Repair	11	SF	$ 84.00	$ 924		
	Full Depth Vertical Concrete Precast Railing Repair (<2 CF each)	6	LOC	$ 360.00	$ 2,160		
	Allowance for anchor modifications	1	LS	$ 1,500.00	$ 1,500		
	Rout & seal cracks	22	LF	$ 101.00	$ 2,222		
04	**MASONRY**						**$ -**
05	**METALS**						**$ -**
06	**WOOD AND PLASTICS**						**$ -**

NORTH BAY
CONSTRUCTION CONSULTANTS

DIRECT COST DETAIL - WEST FAÇADE

DIV.	ELEMENT	QTY	UNIT	UNIT COST	SUBTOTAL	ELEMENT SUBTOTAL	TOTAL
07	**THERMAL AND MOISTURE PROTECTION**						**$ 17,919**
07 90	**Joint Sealants**					**$17,919**	
	Exterior perimeter sealant & backer rod	1,056	LF	$ 9.00	$ 9,504		
	Remove & replace exterior vertical building joint sealant	495	LF	$ 17.00	$ 8,415		
08	**OPENINGS**						**$ 141,796**
08 50	**Metal Windows (Filed Sub)**					**$97,179**	
	Fixed/Casement Insulated Metal Windows ("Typical")	1,053	SF	$ 82.00	$ 86,346		
	Fixed/Casement Insulated Metal Windows ("Large")	69	SF	$ 94.00	$ 6,504		
	Fixed/Casement Insulated Metal Windows ("Small")	0	SF	$ 75.00	$ -		
	Insect screens (ALLOWANCE)	421	SF	$ 8.00	$ 3,370		
	Limiters at operable windows	48	EA	$ 20.00	$ 960		
08 98	**Window-related Accessories (Metal Windows Filed Sub)**					**$12,869**	
	New wood blocking at sills, head & jambs	994	BF	$ 3.60	$ 3,578		
	Sheet metal sill pan (ALLOWANCE)	183	LF	$ 16.00	$ 2,928		
	Sheet metal head flashing (ALLOWANCE)	183	LF	$ 12.50	$ 2,288		
	Self-adhered membrane transition flashing w/primer (ALLOWANCE)	994	LF	$ 4.10	$ 4,075		
08 99	**Misc. Openings (Metal Windows Filed Sub)**					**$31,748**	
	Filed Sub-Bid Submittals & Coordination	1	LS	$ 9,500.00	$ 9,500		
	Mobilization/demobilization	1	LS	$ 5,000.00	$ 5,000		
	Lift rental, 135' boom	1	MTHS	$ 8,500.00	$ 8,500		
	Filed Sub-Bid OH&P (5%)	1	LS	$ 6,652.43	$ 6,652		
	Filed Sub-Bid Insurance & Bonds (1.5%)	1	LS	$ 2,095.51	$ 2,096		
09	**FINISHES**						**$ 21,516**
09 26	**Gypsum Board Assemblies**					**$16,597**	
	Misc patch to match & touch up plaster or GWB	1	LS	$ 4,000.00	$ 4,000		
	Repair plaster popcorn ceiling at windows (ALLOWANCE)	333	SF	$ 16.00	$ 5,320		
	Repair plaster at window jambs (ALLOWANCE)	331	SF	$ 22.00	$ 7,277		
09 60	**Flooring**					**$2,660**	
	Remove, prep, patch/replace Oak parquet flooring to match (ALLOWANCE)	166	SF	$ 16.00	$ 2,660		

NORTH BAY
CONSTRUCTION CONSULTANTS

DIRECT COST DETAIL - WEST FAÇADE

DIV.	ELEMENT	QTY	UNIT	UNIT COST	SUBTOTAL	ELEMENT SUBTOTAL	TOTAL
09 90	**Painting**					$2,259	
	Paint plaster ceiling/soffit/wall	663	SF	$ 2.20	$ 1,459		
	Misc paint touch-up	1	LS	$ 800.00	$ 800		
12	**FURNISHINGS**						$ 2,805
12 20	**Window Treatments**					$ 2,805	
	Reinstall existing window treatments	1,122	SF	$ 2.50	$ 2,805		
22	**PLUMBING**						$ -
23	**HVAC**						$ -
26	**ELECTRICAL**						$ -
	TOTAL DIRECT COSTS - WEST FAÇADE						$ 244,840

NORTH BAY
CONSTRUCTION CONSULTANTS

Project: Winslow Towers | Arlington Housing Authority
Date: November 16, 2018

STUDY PHASE COST ESTIMATE **"LONG TERM"**

DIRECT COST DETAIL - PER FAÇADE

DIV.	ELEMENT	QTY	UNIT	UNIT COST	SUBTOTAL	ELEMENT SUBTOTAL	TOTAL
01	**GENERAL REQUIREMENTS**						**$ 12,900**
01 54	**Construction Aids**					**$12,900**	
	Mobilization/demobilization	1	LS	$ 3,500.00	$ 3,500		
	GC Lift rental, 135' boom	2	WKS	$ 4,350.00	$ 8,700		
	Portable toilet rental	2	WKS	$ 350.00	$ 700		
02	**EXISTING CONDITIONS**						**$ -**
03	**CONCRETE**						**$ -**
04	**MASONRY**						**$ -**
05	**METALS**						**$ -**
06	**WOOD AND PLASTICS**						**$ -**
07	**THERMAL AND MOISTURE PROTECTION**						**$ 16,500**
07 90	**Joint Sealants**					**$16,500**	
	Rout mortar, install joint sealant at horiz joint above brick panels (per façade)	660	LF	$ 25.00	$ 16,500		
08	**OPENINGS**						**$ -**
09	**FINISHES**						**$ -**
12	**FURNISHINGS**						**$ -**
22	**PLUMBING**						**$ -**
23	**HVAC**						**$ -**
26	**ELECTRICAL**						**$ -**
	SUBTOTAL DIRECT COSTS - LONG TERM REPAIRS *PER FAÇADE*						**$ 29,400**
	TOTAL DIRECT COSTS - LONG TERM REPAIRS ALL FAÇADES						**$ 117,600**

REPORT
FOR LIMITED
ASBESTOS CONTAINING MATERIALS IDENTIFICATION
STUDY
AT
ARLINGTON HOUSING AUTHORITY
WINSLOW TOWERS
ARLINGTON, MASSACHUSETTS

PROJECT NO: 218 566.00

Survey Date:
November 23, 2018

CONDUCTED BY:

UNIVERSAL ENVIRONMENTAL CONSULTANTS
12 Brewster Road
Framingham, MA 01702

UEC universal environmental consultants

November 27, 2018

Mr. David Pollak
ABACUS Architects + Planners, Inc
119 Braintree Street
Boston, MA 02134

Reference: Report for Limited Asbestos Containing Materials Identification Study
Arlington Housing, Winslow Towers, Arlington, MA

Dear Mr. Pollak:

Thank you for the opportunity for Universal Environmental Consultants (UEC) to provide professional services.

Enclosed please find the report for limited Asbestos Containing Materials identification study at the Arlington Housing, Winslow Towers, Arlington, MA.

Please do not hesitate to call should you have any questions.

Very truly yours,

Universal Environmental Consultants

Ammar M. Dieb
President

UEC:\218 566.00\Report.DOC

Enclosure

1.0 INTRODUCTION:

Universal Environmental Consultants (UEC) has been providing comprehensive asbestos services since 2001 and has completed projects throughout New England. We have completed projects for a variety of clients including commercial, industrial, municipal, and public and private schools. We maintain appropriate asbestos licenses and staff with a minimum of thirty years of experience.

UEC was contracted by ABACUS Architects + Planners, Inc to conduct a limited identification study for accessible Asbestos Containing Materials (ACM) at the Arlington Housing, Winslow Towers, Arlington, MA.

Bulk samples analyses for asbestos were performed using the standard Polarized Light Microscopy (PLM) Method in accordance with EPA standard. Bulk samples were collected by a Massachusetts licensed asbestos inspector Mr. Jason Becotte (AI-034963) and analyzed by a Massachusetts licensed laboratory Asbestos Identification Laboratory, Woburn, MA.

Samples results are attached.

2.0 FINDINGS:

The regulations for asbestos inspection are based on representative sampling. It would be impractical and costly to sample all materials in all areas. Therefore, representative samples of each homogenous area were collected and analyzed or assumed. All suspect materials were grouped into homogenous areas. By definition a homogenous area is one in which the materials are evenly mixed and similar in appearance and texture throughout. A homogeneous area shall be determined to contain asbestos based on findings that the results of at least one sample collected from that area shows that asbestos is present in an amount greater than 1 percent in accordance with EPA regulations. Per the Department of Environmental Protection (DEP) any amount of asbestos found must be disposed as asbestos.

No additional suspect or accessible ACM were found during this survey. Hidden ACM may be found during the renovation and demolition activities.

Number of Samples Collected:
Fifty-three (53) bulk samples were collected from materials suspected of containing asbestos, including:

Type and Location of Suspect Material

1. Exterior window framing caulking at unit 907
2. Exterior window framing caulking at unit 907
3. Exterior window framing caulking at unit 910
4. Exterior window framing caulking at unit 910
5. Exterior window framing caulking at ground floor lobby
6. Exterior window framing caulking at ground floor common room
7. Exterior fixed window glazing caulking at unit 907
8. Exterior fixed window glazing caulking at unit 907
9. Exterior fixed window glazing caulking at unit 910
10. Exterior fixed window glazing caulking at unit 910
11. Exterior fixed window glazing caulking at ground floor lobby
12. Exterior fixed window glazing caulking at ground floor common room
13. Exterior operable window glazing caulking at unit 907
14. Exterior operable window glazing caulking at unit 907
15. Exterior operable window glazing caulking at unit 910
16. Exterior operable window glazing caulking at unit 910
17. Interior window trim caulking at ground floor common room
18. Interior steel window glazing caulking at ground floor lobby entrance
19. Interior steel window glazing caulking at ground floor lobby entrance

20. Exterior door framing caulking at ground floor common room
21. Exterior door framing caulking at mechanical room
22. Exterior door framing caulking at maintenance
23. Exterior door framing caulking at unit 907 balcony
24. Exterior door framing caulking at unit 910 balcony
25. Exterior vertical caulking brick to cement
26. Exterior vertical caulking brick to cement
27. Exterior vertical caulking cement to cement
28. 2' x 2' Suspended acoustical ceiling tile at common room
29. Textured ceiling skim coat at common room
30. Textured ceiling skim coat at ground floor lobby
31. Textured ceiling skim coat at second floor office
32. Textured ceiling skim coat at unit 907
33. Textured ceiling skim coat at unit 907
34. Textured ceiling skim coat at unit 910
35. Textured ceiling skim coat at unit 910
36. 9" x 9" Vinyl floor tile at common room
37. Mastic for 9" x 9" vinyl floor tile at common room
38. Beige 12" x 12" vinyl floor tile layer I at unit 907 by window
39. Beige 12" x 12" vinyl floor tile layer II at unit 907 by window
40. Yellow glue for beige 12" x 12" vinyl floor tile layer II at unit 907 by window
41. Parquet floor adhesive at unit 907
42. Parquet floor adhesive at unit 910
43. Black cove base at unit 907
44. Black cove base at unit 907
45. Brown cove base at unit 907
46. Brown cove base at unit 910
47. Joint compound at common room
48. Joint compound at ground floor lobby
49. Joint compound at second floor office
50. Joint compound at unit 907
51. Joint compound at unit 907
52. Joint compound at unit 910
53. Joint compound at unit 910

Sample Results:

Type and Location of Suspect Material	Sample Result
1. Exterior window framing caulking at unit 907	3% Asbestos
2. Exterior window framing caulking at unit 907	3% Asbestos
3. Exterior window framing caulking at unit 910	3% Asbestos
4. Exterior window framing caulking at unit 910	3% Asbestos
5. Exterior window framing caulking at ground floor lobby	3% Asbestos
6. Exterior window framing caulking at ground floor common room	3% Asbestos
7. Exterior fixed window glazing caulking at unit 907	5% Asbestos
8. Exterior fixed window glazing caulking at unit 907	5% Asbestos
9. Exterior fixed window glazing caulking at unit 910	5% Asbestos
10. Exterior fixed window glazing caulking at unit 910	5% Asbestos
11. Exterior fixed window glazing caulking at ground floor lobby	2% Asbestos
12. Exterior fixed window glazing caulking at ground floor common room	2% Asbestos
13. Exterior operable window glazing caulking at unit 907	No Asbestos Detected
14. Exterior operable window glazing caulking at unit 907	No Asbestos Detected
15. Exterior operable window glazing caulking at unit 910	No Asbestos Detected
16. Exterior operable window glazing caulking at unit 910	No Asbestos Detected

17.	Interior window trim caulking at ground floor common room	No Asbestos Detected
18.	Interior steel window glazing caulking at ground floor lobby entrance	3% Asbestos
19.	Interior steel window glazing caulking at ground floor lobby entrance	5% Asbestos
20.	Exterior door framing caulking at ground floor common room	5% Asbestos
21.	Exterior door framing caulking at mechanical room	5% Asbestos
22.	Exterior door framing caulking at maintenance	No Asbestos Detected
23.	Exterior door framing caulking at unit 907 balcony	2% Asbestos
24.	Exterior door framing caulking at unit 910 balcony	2% Asbestos
25.	Exterior vertical caulking brick to cement	3% Asbestos
26.	Exterior vertical caulking brick to cement	3% Asbestos
27.	Exterior vertical caulking cement to cement	3% Asbestos
28.	2' x 2' Suspended acoustical ceiling tile at common room	No Asbestos Detected
29.	Textured ceiling skim coat at common room	2% Asbestos
30.	Textured ceiling skim coat at ground floor lobby	2% Asbestos
31.	Textured ceiling skim coat at second floor office	2% Asbestos
32.	Textured ceiling skim coat at unit 907	2% Asbestos
33.	Textured ceiling skim coat at unit 907	2% Asbestos
34.	Textured ceiling skim coat at unit 910	2% Asbestos
35.	Textured ceiling skim coat at unit 910	3% Asbestos
36.	9" x 9" Vinyl floor tile at common room	3% Asbestos
37.	Mastic for 9" x 9" vinyl floor tile at common room	5% Asbestos
38.	Beige 12" x 12" vinyl floor tile layer I at unit 907 by window	No Asbestos Detected
39.	Beige 12" x 12" vinyl floor tile layer II at unit 907 by window	No Asbestos Detected
40.	Yellow glue for beige 12" x 12" vinyl floor tile layer II at unit 907 by window	No Asbestos Detected
41.	Parquet floor adhesive at unit 907	No Asbestos Detected
42.	Parquet floor adhesive at unit 910	No Asbestos Detected
43.	Black cove base at unit 907	No Asbestos Detected
44.	Black cove base at unit 907	No Asbestos Detected
45.	Brown cove base at unit 907	No Asbestos Detected
46.	Brown cove base at unit 910	No Asbestos Detected
47.	Joint compound at common room	2% Asbestos
48.	Joint compound at ground floor lobby	2% Asbestos
49.	Joint compound at second floor office	2% Asbestos
50.	Joint compound at unit 907	2% Asbestos
51.	Joint compound at unit 907	2% Asbestos
52.	Joint compound at unit 910	2% Asbestos
53.	Joint compound at unit 910	2% Asbestos

Observations and Conclusions:

The condition of ACM is very important. ACM in good condition does not present a health issue unless it is disturbed. Therefore, it is not necessary to remediate ACM in good condition unless it will be disturbed through renovation, demolition or other activity.

1. Exterior window framing caulking was found to contain asbestos.
2. Exterior fixed window glazing caulking was found to contain asbestos.
3. Interior steel window glazing caulking was found to contain asbestos.
4. Exterior door framing caulking was found to contain asbestos.
5. Exterior vertical caulking brick to cement was found to contain asbestos.
6. Exterior vertical caulking cement to cement was found to contain asbestos.
7. Textured ceiling skim coat was found to contain asbestos.
8. 9" x 9" Vinyl floor tile was found to contain asbestos.
9. Mastic for 9" x 9" vinyl floor tile was found to contain asbestos.
10. Joint compound was found to contain asbestos.
11. All other suspect materials were found not to contain asbestos. Hidden ACM may be found during renovation and demolition activities.

3.0 DESCRIPTION OF SURVEY METHODS AND LABORATORY ANALYSES:

Asbestos samples were collected using a method that prevents fiber release. Homogeneous sample areas were determined by criteria outlined in EPA document 560/5-85-030a. Bulk material samples were analyzed using PLM and dispersion staining techniques with EPA method 600/M4-82-020.

Bulk samples analyses for asbestos were performed using the standard Polarized Light Microscopy (PLM) Method in accordance with EPA standard. Bulk samples were collected by a Massachusetts licensed asbestos inspector Mr. Jason Becotte (AI-034963) and analyzed by a Massachusetts licensed laboratory Asbestos Identification Laboratory, Woburn, MA.

Inspected By:

Jason Becotte
Asbestos Inspector

4.0 LIMITATIONS AND CONDITIONS:

This report has been completed based on visual and physical observations made and information available at the time of the site visits, as well as an interview with the Owner's representatives. This report is intended to be used as a summary of available information on existing conditions with conclusions based on a reasonable and knowledgeable review of evidence found in accordance with normally accepted industry standards, state and federal protocols, and within the scope and budget established by the client. Any additional data obtained by further review must be reviewed by UEC and the conclusions presented herein may be modified accordingly.

This report and attachments, prepared for the exclusive use of Owner for use in an environmental evaluation of the subject site, are an integral part of the inspections and opinions should not be formulated without reading the report in its entirety. No part of this report may be altered, used, copied or relied upon without prior written permission from UEC, except that this report may be conveyed in its entirety to parties associated with Owner for this subject study.

Asbestos Identification Laboratory
165 New Boston St., Ste 227
Woburn, MA 01801
781-932-9600
Web: www.asbestosidentificationlab.com
Email: mikemanning@asbestosidentificationlab.com

Batch: 37740

NVLAP®
Lab Code: 200919-0

November 27, 2018

Ammar Dieb
Universal Environmental Consultants
12 Brewster Road
Framingham, MA 01702

Project Number:
Project Name: Winslow Towers, Arlington, MA

Date Sampled: 2018-11-23
Work Received: 2018-11-26
Work Analyzed: 2018-11-26

Analysis Method: BULK PLM ANALYSIS EPA/600/R-93/116

Dear Ammar Dieb,

Asbestos Identification Laboratory has completed the analysis of the samples from your office for the above referenced project .

The information and analysis contained in this report have been generated using the EPA /600/R-93/116 Method for the Determination of Asbestos in Bulk Building Materials. Materials or products that contain more than 1% of any kind or combination of asbestos are considered an asbestos containing building material as determined by the EPA. This Polarized Light Microscope (PLM) technique may be performed either by visual estimation or point counting. Point counting provides a determination of the area percentage of asbestos in a sample. If the asbestos is estimated to be less than 10% by visual estimation of friable material, the determination may be repeated using the point counting technique. The results of the point counting supersede visual PLM results. Results in this report only relate to the items tested. This report may not be used by the customer to claim product endorsement by NVLAP or any other U.S. Government Agency.

Laboratory results represent the analysis of samples as submitted by the customer. Information regarding sample location, description, area, volume, etc., was provided by the customer. Asbestos Identification Laboratory is not responsible for sample collection activities or analytical method limitations. Unless notified in writing to return samples, Asbestos Identification Laboratory discards customer samples after 30 days. Samples containing subsamples or layers will be analyzed separately when applicable. Reports are kept at Asbestos Identification Laboratory for three years. This report shall not be reproduced, except in full, without the written consent of Asbestos Identification Laboratory.

- NVLAP Lab Code: 200919-0
- Massachusetts Certification License: AA000208
- State of Connecticut, Department of Public Health Approved Environmental Laboratory Registration Number: PH-0142
- State of Maine, Department of Environmental Protection Asbestos Analytical Laboratory License Number: LB-0078(Bulk) LA-0087(Air)
- State of Rhode Island and Providence Plantations. Department of Health Certification: AAL-121
- State of Vermont, Department of Health Environmental Health License AL934461

Thank you Ammar Dieb for your business.

Michael Manning
Owner/Director

November 27, 2018

Ammar Dieb
Universal Environmental Consultants
12 Brewster Road
Framingham, MA 01702

Project Number:
Project Name: Winslow Towers, Arlington, MA

Date Sampled: 2018-11-23
Work Received: 2018-11-26
Work Analyzed: 2018-11-26

Analysis Method: BULK PLM ANALYSIS EPA/600/R-93/116

FieldID / LabID	Material	Location	Color	Non-Asbestos %	Asbestos %
1 / 415543	Window Frame Caulk	Unit 907	gray	Non-Fibrous 97	Detected Chrysotile 3
2 / 415544	Window Frame Caulk	Unit 907	gray	Non-Fibrous 97	Detected Chrysotile 3
3 / 415545	Window Frame Caulk	Unit 910	gray	Non-Fibrous 97	Detected Chrysotile 3
4 / 415546	Window Frame Caulk	Unit 910	gray	Non-Fibrous 97	Detected Chrysotile 3
5 / 415547	Window Frame Caulk	Ground Floor Lobby	gray	Non-Fibrous 97	Detected Chrysotile 3
6 / 415548	Window Frame Caulk	Ground Floor Common Room	gray	Non-Fibrous 97	Detected Chrysotile 3
7 / 415549	Fixed Window Glaze	Unit 907	black	Non-Fibrous 95	Detected Chrysotile 5
8 / 415550	Fixed Window Glaze	Unit 907	black	Non-Fibrous 95	Detected Chrysotile 5
9 / 415551	Fixed Window Glaze	Unit 910	black	Non-Fibrous 95	Detected Chrysotile 5
10 / 415552	Fixed Window Glaze	Unit 910	black	Non-Fibrous 95	Detected Chrysotile 5
11 / 415553	Fixed Window Glaze	Ground Floor Lobby	black	Non-Fibrous 98	Detected Chrysotile 2
12 / 415554	Fixed Window Glaze	Ground Floor Common Room	black	Non-Fibrous 97	Detected Chrysotile 3
13 / 415555	Openable Window Glaze	Unit 907	gray	Non-Fibrous 100	None Detected
14 / 415556	Openable Window Glaze	Unit 907	gray	Non-Fibrous 100	None Detected

FieldID / LabID	Material	Location	Color	Non-Asbestos %	Asbestos %
15 / 415557	Openable Window Glaze	Unit 910	gray	Non-Fibrous 100	None Detected
16 / 415558	Openable Window Glaze	Unit 910	gray	Non-Fibrous 100	None Detected
17 / 415559	Window Trim Caulk on Int.	Common Room Window	gray	Non-Fibrous 100	None Detected
18 / 415560	Interior Steel Window Glaze	Ground Floor Lobby Entrance	gray	Non-Fibrous 97	Detected Chrysotile 3
19 / 415561	Interior Steel Window Glaze	Ground Floor Lobby Entrance	black	Non-Fibrous 95	Detected Chrysotile 5
20 / 415562	Door Frame Caulk	Common Room	gray	Non-Fibrous 95	Detected Chrysotile 5
21 / 415563	Door Frame Caulk	Mechanical Room Door	gray	Non-Fibrous 95	Detected Chrysotile 5
22 / 415564	Door Frame Caulk	Maintenance Entry Door	black	Non-Fibrous 100	None Detected
23 / 415565	Door Frame Caulk	Unit 907 Balcony	gray	Non-Fibrous 98	Detected Chrysotile 2
24 / 415566	Door Frame Caulk	Unit 910 Balcony	gray	Non-Fibrous 98	Detected Chrysotile 2
25 / 415567	Exterior Vertical Caulk	Brick to Cement	gray	Non-Fibrous 97	Detected Chrysotile 3
26 / 415568	Exterior Vertical Caulk	Brick to Cement	gray	Non-Fibrous 97	Detected Chrysotile 3
27 / 415569	Exterior Vertical Caulk	Brick to Cement	gray	Non-Fibrous 97	Detected Chrysotile 3
28 / 415570	2x2 SAT	Common Room Ceiling	multi	Mineral Wool 40 Cellulose 20 Non-Fibrous 40	None Detected
29 / 415571	Textured Ceiling Skim Coat	Common Room	white	Non-Fibrous 98	Detected Chrysotile 2
30 / 415572	Textured Ceiling Skim Coat	Lobby	white	Non-Fibrous 98	Detected Chrysotile 2
31 / 415573	Textured Ceiling Skim Coat	2nd Fl. Office	white	Non-Fibrous 98	Detected Chrysotile 2
32 / 415574	Textured Ceiling Skim Coat	Unit 907	tan	Non-Fibrous 98	Detected Chrysotile 2

FieldID / LabID	Material	Location	Color	Non-Asbestos %	Asbestos %
33 / 415575	Textured Ceiling Skim Coat	Unit 907	tan	Non-Fibrous 98	Detected Chrysotile 2
34 / 415576	Textured Ceiling Skim Coat	Unit 910	white	Non-Fibrous 98	Detected Chrysotile 2
35 / 415577	Textured Ceiling Skim Coat	Unit 910	white	Non-Fibrous 97	Detected Chrysotile 3
36 / 415578	9x9 VFT	Common Room	gray	Non-Fibrous 97	Detected Chrysotile 3
37 / 415579	Black Mastic	Common Room	black	Non-Fibrous 95	Detected Chrysotile 5
38 / 415580	Beige 12x12 VFT Layer 1	Unit 907 by Window	gray	Non-Fibrous 100	None Detected
39 / 415581	Beige 12x12 VFT Layer 2	Unit 907 by Window	gray	Non-Fibrous 100	None Detected
40 / 415582	Yellow Glue	Unit 907 by Window	yellow	Non-Fibrous 100	None Detected
41 / 415583	Parquet Floor Adhesive	Unit 907	gray	Cellulose 2 Non-Fibrous 98	None Detected
42 / 415584	Parquet Floor Adhesive	Unit 910	multi	Cellulose 2 Non-Fibrous 98	None Detected
43 / 415585	Black Cove Base	Unit 907	black	Non-Fibrous 100	None Detected
44 / 415586	Black Cove Base	Unit 910	black	Non-Fibrous 100	None Detected
45 / 415587	Brown Cove Base	Unit 907	brown	Non-Fibrous 100	None Detected
46 / 415588	Brown Cove Base	Unit 910	brown	Non-Fibrous 100	None Detected
47 / 415589	Joint Compound	Common Room	white	Non-Fibrous 98	Detected Chrysotile 2
48 / 415590	Joint Compound	Lobby	white	Non-Fibrous 98	Detected Chrysotile 2
49 / 415591	Joint Compound	2nd Fl. Office	white	Non-Fibrous 98	Detected Chrysotile 2
50 / 415592	Joint Compound	Unit 907	tan	Non-Fibrous 98	Detected Chrysotile 2

FieldID / LabID	Material	Location	Color	Non-Asbestos %	Asbestos %
51 / 415593	Joint Compound	Unit 907	tan	Non-Fibrous 98	Detected Chrysotile 2
52 / 415594	Joint Compound	Unit 910	tan	Non-Fibrous 98	Detected Chrysotile 2
53 / 415595	Joint Compound	Unit 910	tan	Non-Fibrous 98	Detected Chrysotile 2

Tuesday 27

End of Report

Analyzed by:

Batch: 37740

CHAIN OF CUSTODY

Universal Environmental Consultants
12 Brewster Road
Framingham, MA 01702
Tel: (508) 628-5486 - Fax: (508) 628-5488
adieb@uec-env.com

PLM
24-hour TAT

Town/City: Arlington, MA Building Name Winslow Towers

Sample	Result	Description of Material	Sample Location
1		Window frame caulk	unit 907
2		"	"
3		"	unit 910
4		"	"
5		"	Ground floor lobby
6		"	Ground floor Common Room
7		Fixed window glaze	unit 907
8		"	"
9		"	unit 910
10		"	"
11		"	Ground floor lobby
12		"	Ground floor common room
13		operable window glaze	unit 907
14		"	"
15		"	unit 910
16		"	"
17		window trim caulk on Int.	common room window
18		Interior steel window glaze	Ground floor lobby entrance
19		"	"
20		door frame caulk	common room

Reported By: Jason Berube Date: 11-23-18 Due Date: ----------

Received By: [signature] Date: 11/26/18.

CHAIN OF CUSTODY

PLM

Universal Environmental Consultants
12 Brewster Road
Framingham, MA 01702
Tel: (508) 628-5486 - Fax: (508) 628-5488
adieb@uec-env.com

Town/City: Arlington, MA Building Name Winslow towers

Sample	Result	Description of Material	Sample Location
21		Door Frame Caulk	mechanical room door
22		"	maintenance entry door
23		"	unit 907 Balcony
24		"	unit 910 Balcony
25		exterior vertical caulk	Brick to cement
26		"	" "
27		"	cement to cement
28		2x2 SAT	Common Room ceiling
29		Textered ceiling skim coat	Common room
30		"	Lobby
31		"	2nd fl. office
32		"	unit 907
33		"	" "
34		"	unit 910
35		"	" "
36		9x9 VFT	Common room
37		Black mastic	" "
38		Beige 12x12 VFT layer 1	unit 907 by window
39		Beige 12x12 VFT Layer 2	" "
40		Yellow glue	" "

Reported By: Jason Beattie Date: 11-23-18 Due Date: ----------

Received By: ---------- Date: ----------

CHAIN OF CUSTODY

Universal Environmental Consultants
12 Brewster Road
Framingham, MA 01702
Tel: (508) 628-5486 - Fax: (508) 628-5488
adieb@uec-env.com

PLM

Town/City: Arlington, MA Building Name Winslow Towers

Sample	Result	Description of Material	Sample Location
41		Parquet Floor adhesive	unit 907
42		" "	unit 910
43		Black cove base	unit 907
44		" "	unit 910
45		Brown cove base glue	unit 907
46		" "	unit 910
47		Joint compound	Common room
48		"	Lobby
49		"	2nd fl. office
50		"	unit 907
51		"	" "
52		"	unit 910
53		"	" "

Reported By: Jason Brodie Date: 11-23-18 Due Date: ----------

Received By: ---------- Date: ----------